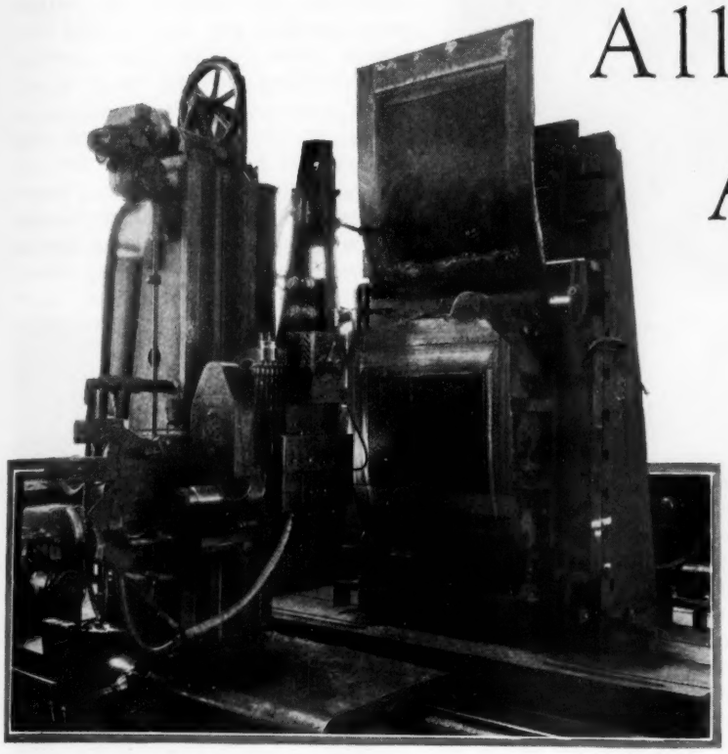
Volume 83
Number 22

IRON TRADE REVIEW

Cleveland, O.
Nov. 29, 1928

All-Steel Body Affords Rigid Construction



Automatic die cutting machine at work on door panel die

Special Welding Machines and Jigs for Holding Component Parts Are Widely Employed

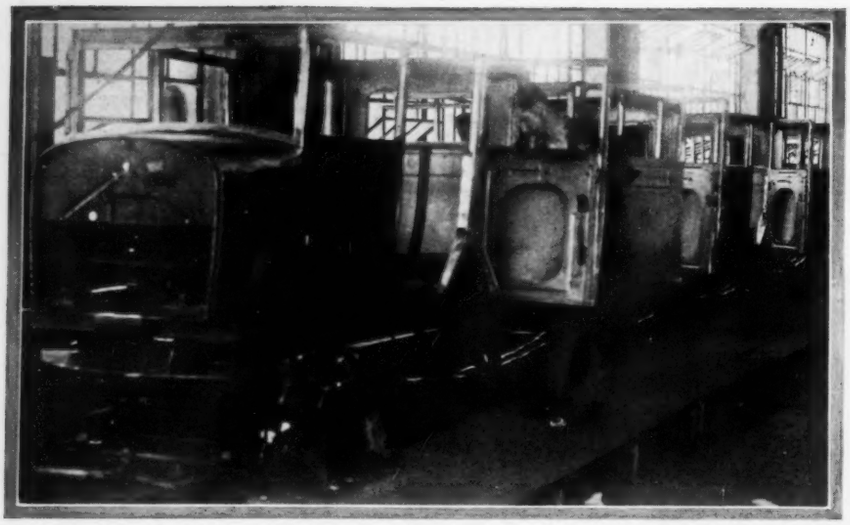
By Kent Lighty

AUTOMOBILE bodies of all-steel construction were first produced 15 years ago by the Edward G. Budd Mfg. Co., Philadelphia. In 1922, one out of every 12 cars produced carried an all-steel body; in 1926 more than one out of every three produced were so equipped. Like other important developments in this field, the all-steel body went through a prolonged probationary stage. It had to prove its superiority and upset established precedent inherited from carriage building days before it received widespread acceptance.

The trend towards the all-steel body began when pressed steel fenders supplanted the mud guards of the "horseless carriage." Bodies in those days were made entirely of wood. The strains imposed upon automotive vehicles soon demonstrated that wood was not the ideal material. The first change in the body itself came with the substitution of metal panels where a higher finish could be maintained than on wood. For structural strength, however, the body builders still relied upon the wood framework. From this point, body building took two divergent lines of development. One line continued the combination of wood and steel until the present composite type was evolved. This body offers an exterior of pressed metal panels built around a framework of wood.

Builders who followed the other line of development visualized a body in which there was no wood at all. They pictured a body in which the structural strength was derived from a steel framework so welded to the exterior panels that the finished body would be a single unit. In this they saw two outstanding advantages: first, a stronger and therefore safer body capable of greater resistance in case of accident; second, a reduction in the size of the posts supporting the top of closed cars, particularly those on either side of the windshield, the reduction permitting a greatly increased range of vision for the driver, enabling him in many cases to avoid accidents. They also anticipated a body with greater durability and longer life, an absence of squeaks and rattles and one which could be produced considerably more economically.

To understand the success of the all-steel body, it is necessary to contrast its construction problems with those of the wood body. The principal advantages of wood are the ease with which it may be worked, and the fact that it can easily be glued and cemented together. Its disadvantages are numerous. Even a carefully



Final assembly line where doors are hung and hardware installed

selected piece of wood may not have uniform strength. Its grain cuts down its resistance in certain directions, it swells and contracts with varying weather conditions, it warps easily and is too soft to provide a really good mounting for a screw or bolt.

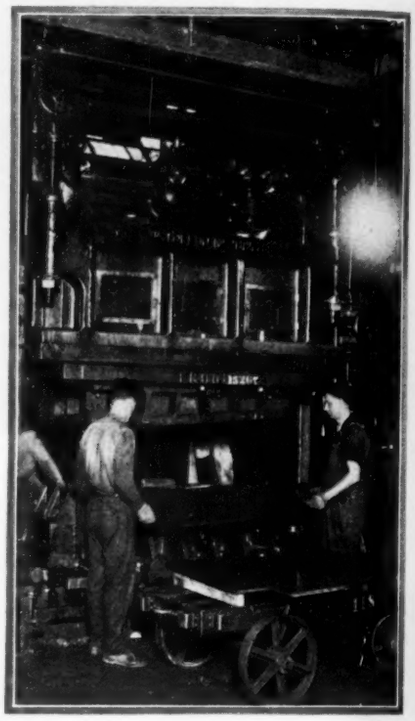
Initial Tool Cost Is Less

In making body frames of wood, the initial tool cost is less than that of the all-steel body. Therefore, where car production is limited and where the market demands a constantly changing galaxy of bodies, the composite body will be found more economical. The shortcomings of wood from a production standpoint, are striking. It cannot be cast, stamped, welded, brazed, forged, rolled or pressed to make structural forms. It must be cut or, within certain limits, bent by steaming. It cannot be machined with the accuracy of steel, heat treated or alloyed.

Nearly all wooden parts must be cut from the solid wood. Take, for example, the pillar post which supports the roof. On it is hung the door, against it is swung the adjacent door. Locks and other hardware must be accommodated. The upright post is honeycombed with depressions, holes and notches. In a steel post, the steel is pressed to conform; neither material nor strength being sacrificed. To overcome this disadvantage the wood posts are sheathed with metal. In some cases to gain the advantage of vision, the steel windshield posts are spliced to the wood frame below the cowl.

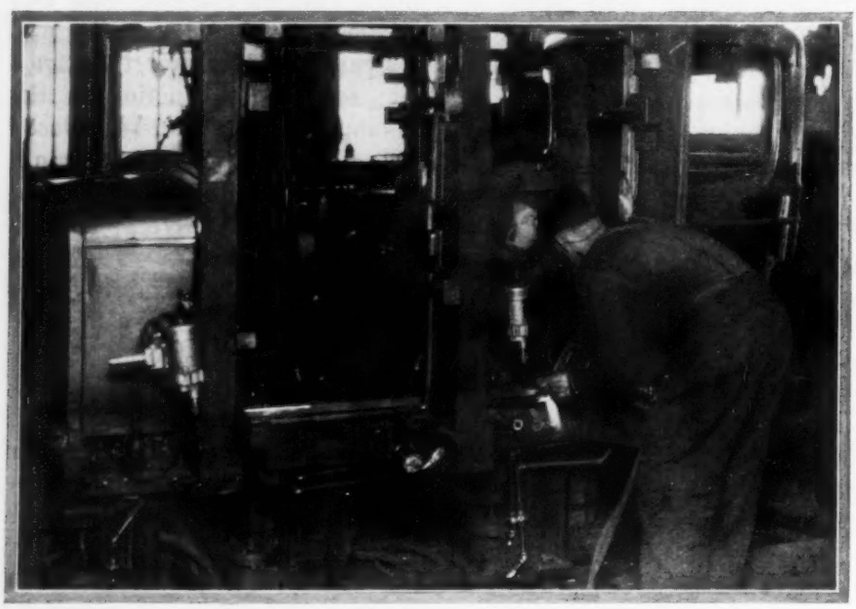
In the early competition with composite body builders, the greatest problem of the all-steel engineer was economical production of the intricate stampings. No rules were available; countless alternative choices had to be rejected or accepted. Every pressed steel part used in the body had to have a die, initial production of which was expensive. Special presses to operate the dies had to be designed. For the important stampings it used to require from six to eight months to cut the dies. Comparatively recent improvements have reduced this time to two months or less. Special machinery for welding the various units together and jigs to hold component parts in the proper position while welding had to be developed.

The tremendous initial expense involved, therefore, made all-steel body construction first successful for only large production schedules. Recent improvements, however, in die cutting, tool manufacture and welding have so reduced the cost and time element



Press for stamping rear wheel housing

that firms building comparatively few cars now find it advantageous to use all-steel construction. Once the machinery and the production lines are ready, actual manufacture becomes rapid and simple. It is estimated that it takes 45 minutes to produce an all-steel body.



Final assembly of a sedan body in a jig for electric welding

Industry Grew Steadily

The Edward G. Budd Mfg. Co., Philadelphia and Detroit began work in a 1-story frame factory, too small to accommodate their first press, which was set up in the yard and sheltered by a makeshift tent. There followed a period of steady growth until about two years ago when the industry's interest centered on the possibilities of all-steel bodies. The Budd company acquired extensive plants in Philadelphia and proceeded to estab-

lish itself in Detroit. The defunct Liberty motor plant at Detroit was secured. A few months later, an extensive building campaign was undertaken, which has more than doubled the production capacity. Previously automobile bodies were delivered in the "white." Now a large body finishing plant is provided where bodies are painted and trimmed, ready to drop on the chassis. The Liberty motor plant has been turned over exclusively to the Budd Wheel Co., an affiliated company formed in 1916.

The building program culminated in the erection of 20 new buildings. In contrast with the earlier days, the Budd company now employs more than 10,000 men, occupies nearly 3,000,000 square feet of combined floor space and the original press has been displaced by more than 600 of the most modern machines. Nearly 15,000 tons of sheet metal is shaped in a month, the majority of which is the best drawing grade of full-finished autobody sheets. More than 500,000 pounds of tool steel is used annually for die inserts. The quantity of special cast iron which forms the bulk of these dies runs into many times this figure. The capacity of the Budd company now exceeds one million bodies a year.

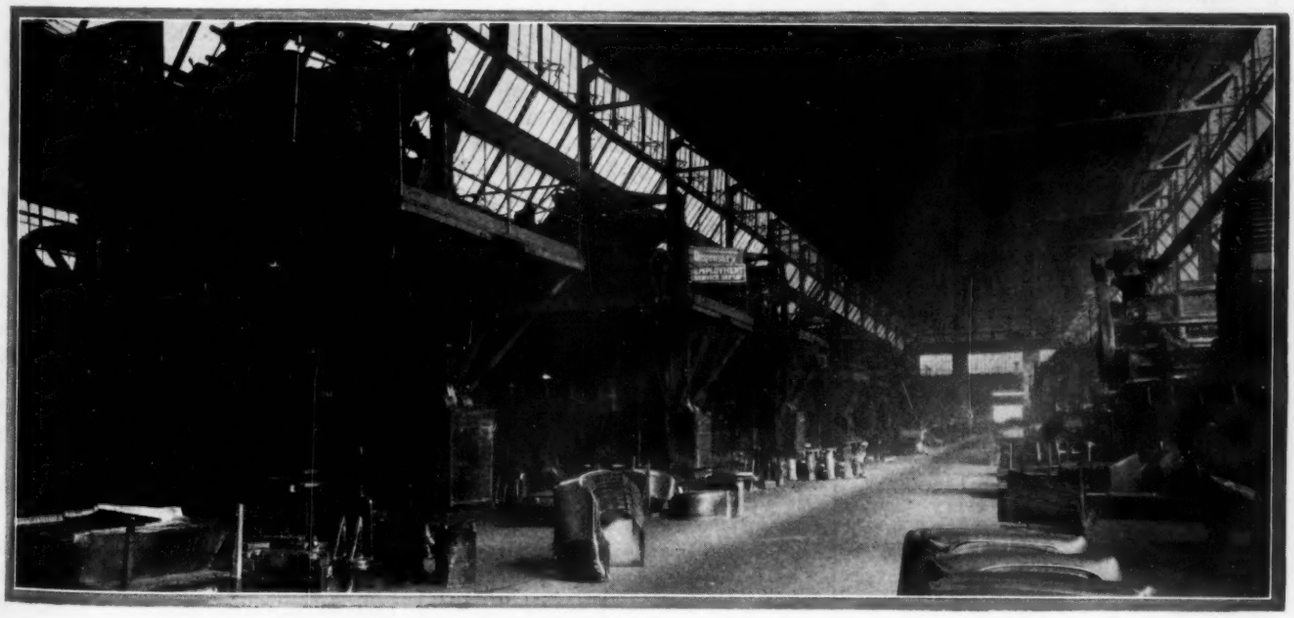
European opportunities have not been overlooked in the Budd company's expansion. Within the past two years, they have acquired extensive interests in the three major countries abroad.

Subassembly of a cowl and windshield posts ready for welding

Corrosion Test Methods

Comparison of the merits of two certain types of accelerated laboratory testing methods for evaluating the indicated life of the coating on hot-dip zinc-coated sheet steel has been made in research paper number 10, recently issued by the bureau of standards, department of commerce, Washington. The investigation was made by Edward C. Groesbeck, associate metallurgist, and William A. Tucker, scientific assistant, of the bureau of standards. Numerous illustrations and photomacrographs show the effects of various types of exposures on zinc-coated sheets. The booklet contains 40 pages and is a reprint from the bureau of standards *Journal of Research*, August, 1928.

Magnesium, the lightest metal, and its alloys are becoming more prominent for materials of construction where lightness and strength are important factors, for example in the manufacture of aircraft and for moving parts of gasoline engines, according to the department of commerce, Washington.



View in the main press room where automobile body parts are formed to specified dimensions

World Industrialization To Broaden Industrial Machinery Demand

By W. H. Rastall

INDUSTRIAL revolution has brought many changes. Prior to the application of machinery and mechanical power, living was uncomfortable, unhealthful and depressing in the extreme because humanity was forced to toil wearily, primitively, unintelligently overworked and driven heartlessly through long hours daily in order to obtain a mere pittance.

We have become so accustomed to new and startling inventions that we probably never stop to think of their real significance. For example, the invention of the cotton gin is claimed to be the real cause of the Civil war.

The simple invention of the cotton gin did even more than this—it had the most profound effect upon our export trade. In 1791 the total exports of cotton from this country were 189,500 pounds, but following the cheapened production resulting from the employment of the gin, these exports expanded rapidly and by 1811 had reached 62,000,000 pounds, a trade that has been expanded practically continuously ever since.

It is unnecessary to enlarge upon the economic and social consequences of this cotton trade which even today is our largest single export. This simple cotton gin made possible much of the wealth of the entire country. It created the textile industry of England with all of the economic forces that have flowed therefrom. It has raised the standard of living of the entire world; the people in every country and every race are able to dress much more comfortably, more cleanly, more attractively because of this simple invention. It is not so easy to trace the economic consequences of our other industrial activities because they are interrelated.

Progress Is Unceasing

The cotton industry itself has derived benefits from hundreds of thousands of inventions other than the cotton gin; but ever since 1873 there has been a continuing progress which increases its acceleration every year, the progress shown in the last decade being greater than that of any preceding decade and probably is much greater than is realized by those of us who live closest to it. For example, on our railways the improvement in coal economy in 1927 represented a saving of $17,000,000, as compared with 1926, and $92,000,000, as compared with 1920.

In the coal mining industry in 1926 one man produced 17 per cent more coal than in 1919 and incidentally this was probably four times as much as produced by the coal miners of Europe. In 1919 about 60 per cent of our coal was cut by machine; by 1926 about 72 per cent was so cut. In 1918 coal was only beginning to be loaded under ground mechanically; by 1926 about 6,250,000 tons was so loaded.

A factory operative now turns out 32,000 razor blades in the same time he produced 500 in 1913; in 1925 one hundred men made as many rubber tires as were produced in 1914; as many automobiles as were produced by 272; refined as much petroleum as was refined by 183; produced as much cement as 161; as much iron and steel as 159; as much flour as 140; and so on, through the whole category. We often hear references to such progress, but do we stop to remember that they represent the progress not of an industry, or an inventor, or a machinery manufacturer, but a contribution made to the man in the street; a means by which the standard of living of the entire population is advanced and that in reality this standard of living is the real measure of prosperity. The industrial revolution has changed the entire trend of human life.

Foreign Movement Is Slower

In foreign countries there has been a similar movement, but not at so rapid a rate. Their industries have not been so rapidly nor highly developed. Their labor is not given so liberal a wage; their standard of living is not so high; yet perhaps it can be stated that in the material sense a civilization can be measured by the amount of machinery employed.

In the United States we purchase and install in our industries $23 worth of machinery per year for each man, woman and child of our population. In Great Britain the corresponding figure is only $10 and in Germany less than $9. It would seem that here we have the secret of the high American wage, for we are able to pay perhaps three times the British wage; four times the German wage and still successfully export about $2,000,000,000 worth of manufactured goods annually. In China the volume of machinery absorbed per capita per year is only 5 cents; this also explains the low living conditions of China, but is it not pathetic that in the Twentieth century there should be a country with some 400,000,000 people still struggling along, taking practically no advantage of the world's industrial development? But pathetic and desperate as that condition may appear, it is reassuring to observe that conditions are changing.

Practically every country in the world is now desirous of becoming economically self-sufficient; to develop such industries as are required to fur-

Mechanization Is Key To Prosperity

THE United States long has been recognized as the most highly industrialized country in the world. As a result of the mechanical equipment which he has at his disposal, the American workman has increased his productivity many fold and at the same time has established his economic position on a higher plane. Mechanization now is regarded as the key to prosperity. In the accompanying article, a portion of an address presented at the Middle West Foreign Trade and Merchant Marine Conference in Chicago, Nov. 19-20, W. H. Rastall, chief, industrial machinery division, department of commerce, Washington, discusses the significance of industrialization of foreign countries. Mr. Rastall foresees an expanding demand for American-made equipment as Europe, Asia and South America undergo an industrial revolution. In addition, he sees a social and political aspect resulting from the economic forces released by industrial development.

nish manufactured goods as needed for their own population. A great progress is being made even though these new developments have resulted in serious confusion. Eager to protect these infant industries, tariff barriers have been raised that have seriously interfered with world trade and general prosperity. On the other hand, literally thousands of new industries are developing; each nation is becoming more and more self-sufficient; industries are developing wealth not only for their owners, but for the populations that they serve and this in turn is releasing a chain of economic forces of great importance.

Japan Has Advanced

From the industrial point of view, Asia is probably the most backward of the densely populated sections of the world, and yet, even in Asia, important developments may be observed. Japan, for example, has begun a splendid example of industrial progress. This involved much study and much struggle, but Japan is no longer the Oriental country of the past. At the time of the Russo-Japanese war Japan could be considered a cheap country; labor could be hired there for less than $15 a month; it was willing to work long hours at menial tasks for a mere pittance, but through the application of machinery, the standard of living in Japan has advanced rapidly; today, it is perhaps one of the most expensive countries in the world as a residence for the white man; wages and standards of living have advanced and as the trade and industries of the country expand the standards of living will be raised to even higher levels. These developments would have moved much more rapidly than they have if the country had been blessed with natural resources, but even at that, the experience of Japan shows what we may expect hereafter and just as the industrialization of Japan has been followed by a rapidly expanding foreign commerce, we may also expect similar development in other countries following industrialization.

Since the armistice, Asia has absorbed more than $1,000,000,000 worth of industrial machinery. In literally ten thousand ways this equipment is working to increase the wealth and the standards of living of these nations.

In Latin America events are moving similarly, but more rapidly. The economic progress of Latin America is moving much more swiftly than that of Asia; machinery is being absorbed more rapidly; industry is being created and developed with greater speed; again releasing economic forces of deepest consequence.

In Australia and South Africa similar forces are at work and moving more rapidly than in other areas, while in Europe we again see the most rapid development to be found outside of this continent. In all of these matters American engineering and American machinery occupy a unique position for in this country we produce 57 per cent of the world's industrial machinery; Great Britain and Germany are looked upon as our leading competitors in this line, but each of these countries will produce only about 13 per cent of the world's machinery, our predominance being on the order of 4½ to 1.

Furthermore, although these countries are usually considered our leading competitors, they are also our most important customers. Great Britain alone will absorb about $25,000,000 worth of industrial machinery annually; Germany about $7,000,000 worth and would take more if financial conditions made this possible. These figures indicate that although industrial progress in foreign countries is rapid, the progress in this country is even more rapid.

There is also the social and political aspect of this whole situation because the economic forces released by industrial development are exhibiting a profound influence on all phases of human activity. In Latin America when a man of position thinks of educating his children he usually feels he wants to furnish them with a cultural contact and in so doing thinks first of Paris, next of Madrid, and his idea of culture carries back through the entire history of the Spanish race; such culture as expressed merely in forms of etiquette and human contact; appreciation of art and music, a love of romance and fantistic dreams, but there is an application of ideals quite the reverse of mere materialism, and who is there that would despise such aspirations or deprive the Latin or any other peoples of their own ideas of culture? Yet, in these days of rapid travel by water, by rail, by air; of rapid communication by mail, by telephone, by radio, or in person, how is it possible to prevent a certain conflict between the cultural standards of the world's peoples, and since the cultural standards of the United States are so vigorously supported by our material prosperity, how will it be possible for these other cultures to prevent their own eclipse? Obviously, the economic forces resulting from the industrialization of the various countries of the world, together with educational forces, political forces and cultural forces, necessarily associated therewith, are setting up conditions which perhaps will compel the disintegration of some of the many of these cultural and political systems.

Old Orders Have Changed

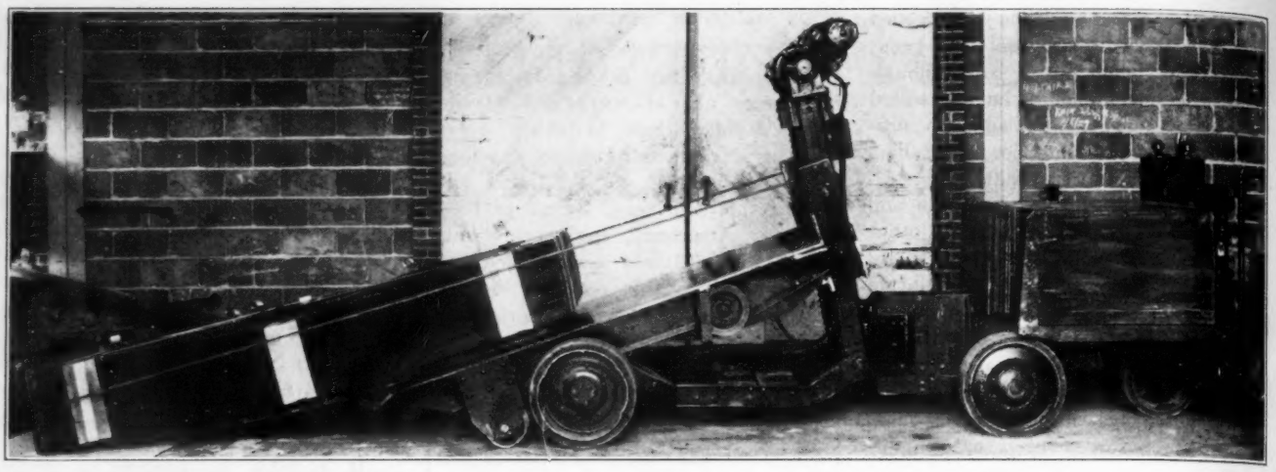
During recent years you have witnessed the destruction of the imperialistic ideas of Germany and the Dual Empire, and this in turn has forced the political systems in these countries. Similarly, you have witnessed the political, economic and social revolutions in Russia and in Turkey. In Turkey, you have seen the most complete change of all because the forces released in recent years have completely changed not only the political sytem of that country, but the cultural standards, the social customs, the economic situation, even the religious system and the alphabet have been involved.

These experiences lead us to raise the question as to whether countries like China and India will be able to continue as in the past, or whether they too, will find it necessary to tear up their old cultural systems; their old civilization and perhaps even their political organizations, in order to get in step with Twentieth century progress, and yet, from the material point of view, it will be clear to you that the industrialization of these various countries is having a most profound effect in stimulating the rapid development of the standard of living of the people involved; their export trade and shipping facilities.

American Leadership Proves Vital

AMERICAN engineering and American machinery occupy a unique position, for in this country we produce 57 per cent of the world's industrial machinery. We enjoy a position of leadership which, of course, is vital if we are to maintain our present position in the world and through this leadership we will be able to progress more rapidly than these other countries, at the same time doing the pioneering necessary to their advancement and furnishing the equipment that will make such advancement possible, policies that will prove of great advantage to ourselves since our prosperity depends upon their prosperity.

—W. H. RASTALL



A double-drum power winch tilts the platform allowing the bundle of sheets to slide to the floor

Handles Sheets in 10-Ton Bundles

AFTER more than a year of development work the Baker-Raulang Co., Cleveland, has succeeded in perfecting an electric storage battery truck which will load ten-ton bundles of sheet steel into box cars without breaking the car floor. Loading steel sheets usually is accomplished by handling them singly or three or four at a time by hand. It often results in scratches which must be removed by polishing.

The tilting truck is unique in its design in that it is articulated, or hinged, in the center. This hinge enables it to make the short turn from the loading dock through a 6-foot car door with a bundle 48 inches wide and 102 inches long. In operation this truck is like a one-horse wagon, if the horse were turned around in the shafts and faced the wagon. The power section carries the battery and the driving and steering apparatus. The load section consists of a tilting platform mounted on a single axle and includes the hoist for tilting the platform and a double drum power winch.

Sheets are provided with 2 x 4-inch wood skids and firmly strapped together. The truck will pick such a package up from the floor, but in order to handle the maximum tonnage it is recommended that the packages be placed on the truck platform by an overhead crane. The steel usually is weighed before it is loaded, and when the crane picks it up from the scale the truck platform is run underneath. The truck then carries the load from the scale and places it in the car.

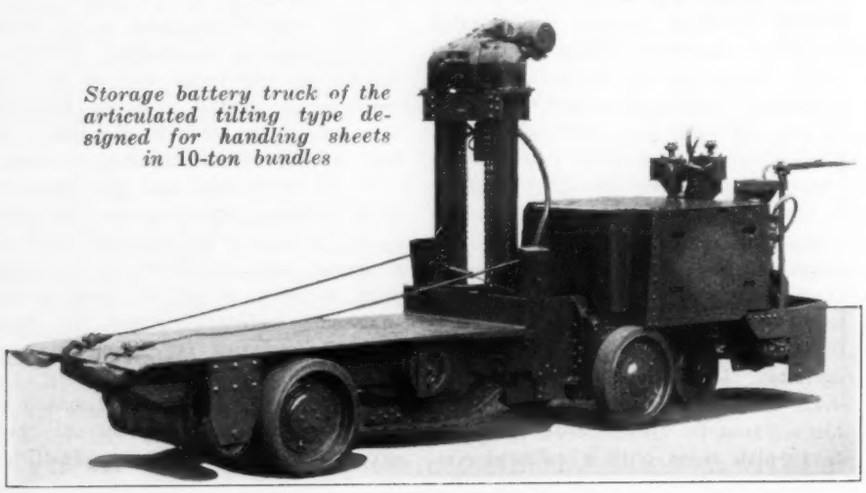
Reduces Loading Time

Making ample allowances for delays, the truck will load approximately 500 tons of sheet in a 10-hour day, putting a package weighing from 6 to 10 tons into a car in from 10 to 12 minutes. In tests packages have been loaded repeatedly into cars within 6 minutes, but in regular operation it is estimated that delays and other contingencies will nearly double this minimum time.

Under the present system, two men load approximately 80 tons of sheet per day by hand. Accordingly, this truck, with an operator and a helper, will replace 12 men and will eliminate all of the damage to the sheets as a result of scratching or rusting.

In operation the truck is driven into the car with the load ahead. The platform is tilted until the rollers and wheels are in contact with the car floor, thereby distributing the load so that the floors will not break. With the platform tilted the package is prevented from slipping by the winch cables. The truck now moves to the end of the car, and the package is allowed to slide from the platform, the operator slacking up on the winch cables. As soon as the package comes into contact with the car floor the truck brake is released and the cables paid out further, the weight of the package sliding the truck out from under the load. Guide strips then are slipped under the package and nailed to the floor alongside the skids. These strips allow the package to slide freely lengthwise of the car but prevent its shifting sidewise.

Sheets larger than 48 x 102 inches can be handled, but automobile cars with 10-foot door widths are required. The truck may be used for unloading cars, the cables pulling the package up onto the truck platform. In case the consignee is not equipped with such a truck the straps can be cut and the steel unloaded by hand as at present.



Storage battery truck of the articulated tilting type designed for handling sheets in 10-ton bundles

Manufacturers Convene

The annual meeting of the Manufacturers Association of Connecticut was held Nov. 7 at the plant of Cheney Bros., South Manchester, Conn. Elections for officers were held.

Considers Uncle Sam Good Customer of Steel Fabricator

Government Departments and Bureaus Have Widespread Needs for Structural Steel—Aircraft Industry To Require Increased Hangar Facilities

By J. Edward Cassidy

COMMERCIAL industries are or should be much interested in the activities of their customers and as the federal government is a large consumer of fabricated structural steel, it is evident that the American Institute of Steel Construction and its component members have a direct interest in its activities. The relation, therefore, of the structural steel industry to the government is that of producer to consumer, and the connecting links between the two are more or less complicated by reason of government methods being rather different from those in vogue in the business world. In the attempt to protect the tax-paying public from official discrimination and other possible practices, a multitude of laws has been enacted and these laws and regulations have resulted in a rather intricate maze of procedure commonly designated as "red tape" which must be untangled when doing business with the government.

Government Needs Are Many

The business man naturally judges his customers by the quantities of his products they consume and as the government has been shown to be a customer of the structural steel industry, it is necessary to consider whether or not this customer is worth cultivating. No less than 15 federal government departments, and independent agencies with more than 30 bureaus are engaged in operations involving the use of structural steel. These agencies are briefly as follows:

1. State department—Construction of embassies and consular offices in foreign countries.
2. Treasury department—Design and construction of postoffices, federal courts, custom houses, structures for the coast guard, and public health service.
3. Department of justice—Construction of federal prisons and structures pertaining to same.
4. War department—Design and construction of buildings by quartermaster department. Design and construction of bridges, buildings, locks and dams by corps of engineers. Construction of roads, bridges, etc., by bureau of insular affairs in insular possessions.
5. Navy department—Design and construction of navy yards, buildings, hospitals, airplane hangars, yards and docks, and all construction for marine corps, this work being conducted under a number of bureaus of the department.
6. Department of interior—Structures of all kinds for bureau of Indian affairs, bureau of standards, reclamation service, national park service and the Alaska railroad.
7. Department of agriculture—Construction of buildings and bridges for forest service and bureau of public roads.
8. Department of commerce—Construction of structures for bureau of light houses, bureau of standards, bureau of aeronautics and other agencies under the jurisdiction of the department.
9. United States shipping board—Structures in connection with the operation of the United States shipping board and the Emergency Fleet Corp.
10. United States veterans bureau—Design and construction of hospitals for veterans of the World war, together with all facilities pertaining to these hospitals.
11. Panama canal—Design and construction of all structures in the canal zone.
12. National homes for disabled volunteer soldiers—The design and construction of complete groups of buildings pertaining to the various homes maintained in ten cities in different sections of the country.
13. Inland Waterways Corp.—Design and construction of buildings, warehouses, docks and barges for operations under its jurisdiction.
14. Office of public buildings and grounds of the national capitol—Design and construction of buildings, bridges and miscellaneous structures in the national capitol.
15. Architect of the capitol—Has the design and construction of all buildings and structures in connection with the capitol, senate and house office buildings, building for United States Supreme Court, Congressional library and any other buildings which congress may provide for in the capitol group.

Of the various government agencies involved in construction activities, the largest groups are as follows:

(a) Supervising architect, treasury department.
(b) Quartermaster, war department.
(c) Supplies and accounts, navy department.
(d) United States veterans bureau.

The office of the supervising architect is charged with the design and construction of all postoffices, customs houses, federal court houses and Coast Guard structures.

For a period of more than ten years prior to last session of congress, no general building bill had been enacted. However, at the last session a progressive building program was adopted and appropriations of more than $250,000,000 authorized. Of this amount $50,000,000 is to be expended in the construction of buildings in the national capitol. This general building bill is exclusive of a large number of special building bills passed. Although not specifically provided in this particular bill, congress provided funds for the purchase of the entire area of land between Pennsylvania avenue and the Mall in Washington. Buildings planned for this area will cost in excess of $200,000,000 and contracts for two large buildings for the internal revenue department and department of commerce will be let in the course of the next few months; the aggregate cost of these two buildings will be about $35,000,000.

Building Program for Army

In connection with war department construction, the last session of congress adopted a regular building program for housing the army and provided approximately $65,000,000 for the work which is carried on by the quartermaster department. This general program does not include a large

From a paper presented at the meeting of the American Institute of Steel Construction in Biloxi, Miss., Nov. 13-17. The author, J. Edward Cassidy, is consulting engineer, Washington.

number of items covered by special legislation such as several millions for construction at the West Point military academy and other disconnected army agencies.

The engineer department of the army annually expends large sums on rivers and harbor construction and in seacoast defenses. Four bureaus in the navy department are interested in construction on a large scale; these activities are consummated through an administrative unit designated as the bureau of supplies and accounts. This work involves annual expenditures of $25,000,000 to $50,000,000.

In considering federal government construction activities, the veterans' bureau is given little more than passing consideration when as a matter of fact this bureau spends from $35,000,000 to $50,000,000 annually in the construction of hospitals for veterans of the World war.

Aviation a Growing Consumer

Some government bureaus, while not directly engaged in construction activities, are indirectly interested in them. Two of these which will become much more important factors are:

1. The aeronautical branch of the department of commerce.
2. The bureau of agricultural economics, department of agriculture.

In regard to the aeronautics branch, department of commerce, it is to be noted that this bureau studies, prepares standard plans and recommends types of airports, hangars and all appurtenances. Aviation is growing by leaps and bounds at a rate ten times as fast as railroads developed in their early days. The structural steel industry should be extremely interested in the development of aviation as the use of structural steel is almost obligatory in the construction of hangars and shops for airports. For transport purposes the size of planes is increasing rapidly. Commercial ships are now being designed and built in Germany with wing spreads up to 165 feet, necessitating clear roof truss spans of up to 200 feet. In the construction of hangars for housing large dirigibles exceptional conditions exist and such a hangar must be practically 1000 feet long with a clear span of around 175 feet and a height of from 175 to 200 feet. Structural steel is the only material possible for use in such structures.

Of course, under present conditions, a limited number of such hangars will be built, but in the airplane line, the number of hangars will almost be unlimited. In endeavoring to estimate the increase in airplane production during the current year, it has been necessary to make an upward revision several times and the indications are that the production of planes for this year will be from 200 per cent to 300 per cent over last year. Estimates from data collected indicate that from 6000 to 8000 planes will be built during 1929.

Approximately 1500 real airports have been constructed and over a thousand ranging in cost from anywhere up to $15,000,000 are under consideration. In the next ten years hundreds of millions of dollars will be spent in airport structures and as previously stated, the only structural members suited for this work are steel. The structural steel industry should take due cognizance of the situation by assisting in the working out of standards for such structures both as a matter of economy and efficiency to the aviation industry and to the structural steel industry.

There are 27 air transport lines now in operation in this country on regular schedules and the operations are being expanded almost weekly. More than 15,000 miles of airways are being traversed, and more than 35,000 miles are covered daily by transport planes operating on regular schedules. In the past five years air mail routes have increased 700 per cent. It is estimated that the value of planes, engines and accessories during the present year will aggregate $100,000,000 and from all indications it will more than double during 1929.

Housing facilities for these planes will require large quantities of structural steel and the structural steel industry not only must grow up with development but must keep ahead of it, and by looking into the future and working out economical designs for the structures at the thousands of airports, the structural steel industry can be of great assistance to the aviation industry.

Structural Steel on the Farm

The agricultural economics bureau of the department of agriculture studies structures for the farm and prepares plans and designs for use in rural districts. As a matter of fact, half a dozen different bureaus of the department of agriculture are engaged in such work. It is just being recognized vaguely that structural steel has important uses in rural structures and that an immense field exists in that line. Owing to a lack of funds for this work, the department of agriculture is unable to go into this matter as thoroughly as it should, and the structural steel industry should take the initiative in such studies and work out a series of standards for the use of structural steel on the farm.

The navy department has large construction activities in various parts of the world, and all of these activities center in Washington.

The question naturally arises: Are close relations with the structural steel industry worth while? In this connection it is to be noted that every industrial association is represented in the national capitol, and over 400 individual industrial concerns are represented for the purpose of taking care of government business.

The structural steel industry has the American Institute of Steel Construction which is about 4 years old, and while it is a highly efficient organization and is doing effective work, it should be enlarged greatly if it is to protect successfully the interests of the structural steel industry.

Aggressiveness Is Essential

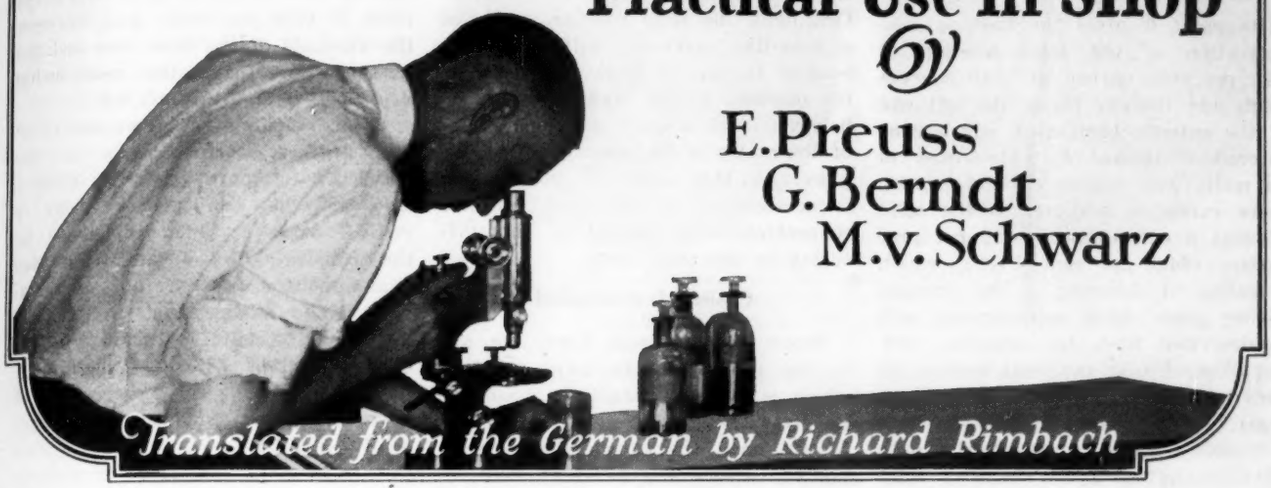
To enable the structural steel industry to hold its own and to get its share of increased business, an aggressive fight must be maintained. The American Institute of Steel Construction provides the collective agency through which the structural steel industry fights for its "place in the sun," and to make its work effective, it must have the full and loyal support of every member, and must have sufficient funds at its disposal to extend the scope of its work materially.

Money spent in collective promotion work by an industrial association undoubtedly comes back to the particular industry many times over. It should be evident that every dollar spent in the work of the American Institute of Steel Construction will come back to the industry.

In regard to the federal building program a large amount of special building legislation always is provided for outside of the general program, which together with special construction legislation for army, navy, marine corps, veterans' bureau and other bureaus, makes it certain that in excess of $100,000,000 will be spent annually by the federal government on construction projects for many years to come.

In the next ten years the expenditures by the federal government on its various construction programs undoubtedly will aggregate $1,000,000,000 and it is certain that the structural steel industry has more than a passing interest in such a construction program, and that the effort and money required to promote the use of structural steel will be time and money well spent.

Metallography Simplified for Practical Use In Shop



By
E. Preuss
G. Berndt
M. v. Schwarz

Translated from the German by Richard Rimbach

Chap. VIII—Forging of Steel

IN THIS chapter will be considered the forging of iron-carbon alloys or steel containing carbon up to 1.7 per cent. If as previously explained we determine the critical points of a series of iron-carbon alloys, then we obtain the equilibrium diagrams as shown in Figs. 79 and 80. In Fig. 79 are marked all the transformations as occurring on the boundaries of the different fields, so that we obtain a rapid and clear picture. In this diagram only the "metastable system" iron cementite, which is valid for the forgable iron-carbon alloys, is considered, while in Fig. 80 there is drawn in addition the stable iron-graphite system. The melting point of pure iron *A* is marked at 1528 degrees Cent. on the left ordinate, while the points *G* (906 degrees) and *M* (768 degrees) show the transformation of the gamma to the beta and the beta to the alpha iron. Not considered here is the fourth modification of iron, the delta iron, existing at carbon contents up to 0.4 per cent above 1401 degrees Cent. and its transformations into the gamma iron, since this transformation is at the present time without practical importance. The melting point of the iron carbide or cementite is taken on the right ordinate at 1550 degrees Cent. On the abscissa axis this concentration of 100 per cent Fe_3C corresponds to 6.67 per cent carbon. The equilibrium diagram is composed of the main parts: First the areas *II* and *III* enclosed by the lines *AC, CD, AE* and *EF* and, second, the areas *IV, V, VI, VII* limited by the lines *GS, SE* and *PSK*. The first can be considered a combination of the typical cases, obtained in the nickel-copper and the lead-antimony alloys; the diagram *GSE, PSK* represents then the transformations, already known from the critical points of the iron, and corresponds in its type completely to the example of the solidification of the lead-antimony alloys. The liquidus line *AC* shows the lowering of the melting point of the iron alloys with increasing carbon content, until the eutectic point is reached at 1145 degrees Cent.; and always gives the different temperatures and concentrations and the beginning of the precipitation of the solid solution. In the hyper-eutectic alloys—which, however, do not occur in the forgable iron-car-

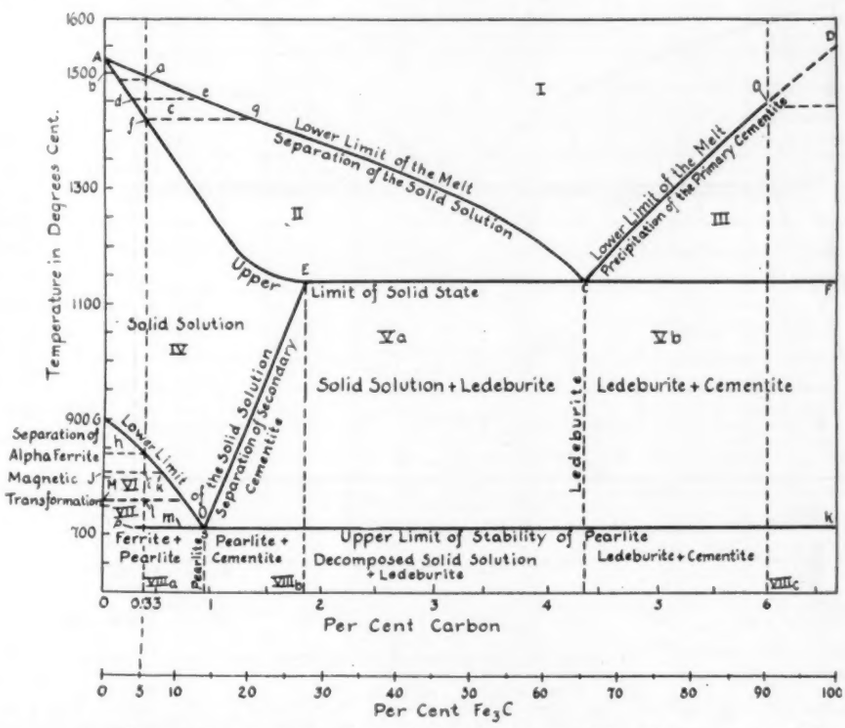


Fig. 79—Schematic representation of the iron-cementite diagram, according to Materials Report No. 42 of the German Iron and Steel institute

bon alloys—the liquidus line *CD* is valid, showing the beginning of the precipitation of primary cementite crystals from the melt. The solidus line *AE* goes over at *E* into the horizontal *ECF*.

Its point *E* gives the limiting concentration of the solid solution to 1.75 per cent carbon at 1145 degrees Cent. and thereby forms the left end of the eutectic horizontal, which runs through *C* toward *F*. Therefore, in all melts with higher carbon content, there exists in addition to the solid solution a eutectic with 4.29 per cent carbon (64.3 per cent Fe_3C), which is called "Ledeburite." The changes taking place upon solidification will be described first, for example, with an alloy of 0.33 per cent carbon (5 per cent Fe_3C) (vertical *a*, *f*, *h*, *i*, *l*, *m*). Upon reaching the liquidus line *a* (1490 degrees), part of the melt solidifies, as we know, forming solid solutions of gamma iron and iron carbide; their composition can be again determined as 0.05 per cent carbon, if we draw through *a* the line of constant temperature *ab*. Upon further cooling to about 1475 degrees this solid solution enriches in iron carbide, that means in carbon up to 0.15 per cent (point *d*). Its quantitative relation to the melt can be determined as before from the equation $x/y =$ *ce/cd*. This diffusion of the carbon from the melt into the solid solution continues until the point $f = 1440$ degrees is reached, where the whole melt is transformed into a solid solution with again 0.33 per cent carbon. Originally the solid solution exhibited a zone-like make-up, with a carbon content increasing from the inside to the outside; at the high temperature, however, such a quick position change of the atoms in the space lattice takes place, so that even if the cooling is accelerated, a completely uniform concentration is reached by this diffusion in the solid state.

Cooling Is Continued

Below 1440 degrees Cent. we are in the region of the solid solution, which is called austenite in honor of Roberts Austen. It cools down uniformly until the intersection *h* with the curve *GO* (temperature 845 degrees Cent.) is reached. Here we observe a critical point corresponding to the point Ar_3 in pure iron, where the gamma iron of the solid solution begins to decompose into the nonmagnetic alpha iron, the beta iron. Since this cannot form a solid solution with the iron carbide, it precipitates as pure iron, similar to the lead in the 7.5 per cent antimony bearing lead antimony alloy. Therefore, the carbon content of the austenite increases along the curve *hS*, while with continued cooling more and more beta iron separates. In the point *i* (825 degrees), for example, the carbon content of the austenite is given by the point *k* (0.4 per cent) and between the amounts of the beta iron and the austenite we have the relationship $x/y = ik/ij = 2.1/7.0 = 0.3$.

Upon reaching the temperature of 768 degrees, corresponding to the point Ar_2 of pure iron, we observe also in the iron-carbon alloys a critical point *l*, which is caused by the transformation of the precipitated nonmagnetic beta iron into the magnetic alpha modification. After cooling to 721 degrees (point *m*) the carbon content of the austenite is increased to 0.9 per cent because of the precipitation of iron. The point *S* of the solid solution corresponding to this point has the same importance as the eutectic point in the usual liquid solutions. It is therefore called the eutectoid point and the corresponding temperature of 721 degrees the eutectoid temperature. In this point the two constituents of the austenite must precipitate as eutectoid. As the gamma iron alone is no longer stable here, it separates out alongside the iron carbide of the iron. The alloy with 0.33 per cent carbon, therefore,

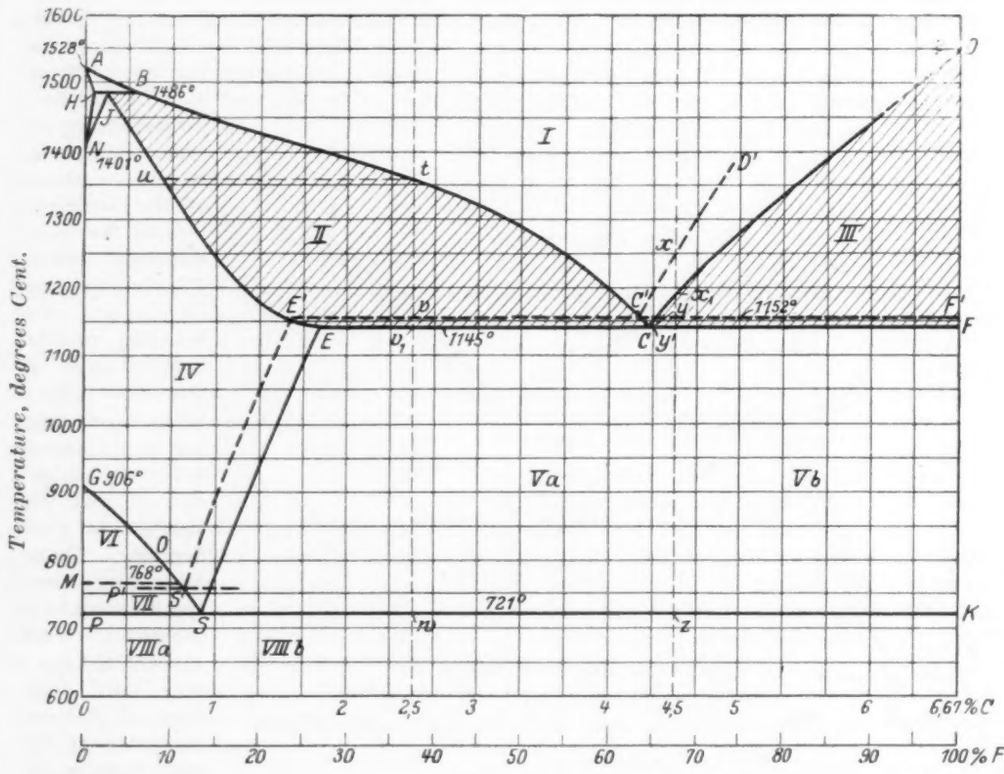


Fig. 80 — Schematic representation of the iron-carbon diagram, according to Materials Report No. 42 of the German Iron and Steel institute. The solid lines refer to the iron-cementite system, the dotted lines to the iron-graphite system.

I. Liquid
II. Mixed crystals and liquid
III. Cementite and liquid.
IV. Mixed crystals (austenite) up to 1.7 per cent carbon
Va. Austenite with 1.7 per cent carbon and ledeburite (eutectic with 4.2 per cent carbon or austenite and ledeburite)
Vb. Cementite and ledeburite
VI. Beta iron (nonmagnetic alpha iron) and austenite
VII. Alpha iron and austenite
VIIIa. Alpha iron (ferrite) and pearlite (eutectoid with 0.9 per cent carbon or ferrite and cementite)
VIIIb. Cementite and pearlite
A. Melting point of pure iron (1528 degrees Cent.)
G. Transformation of gamma iron into beta iron (Ar_3 = 898 degrees Cent., Ac_3 = 906 degrees Cent.)
M. Transformation of beta iron into alpha iron (Ar_2 = Ac_2 = 768 degrees Cent.)
S. Eutectoid point Ar_1 = 721 degrees Cent. for 0.9 per cent carbon content)
C. Eutectic point (1145 to 1152 degrees Cent. for 4.2 per cent carbon content

consists, after solidification, of alpha iron and the eutectoid, alpha iron plus iron carbide.

An etched section of the pure electrolytic iron contains only crystals of alpha iron, which are all of the same type, Fig. 81; a section of steel with 0.13 per cent carbon, Fig. 82, however, shows in addition to the dark spots a constituent known as pearlite, which with larger magnification develops as a system of bent bright and dark lamellae proving therefore their eutectoid nature. The eutectoid received the name pearlite because in its appearance it resembled mother of pearl. The alloy mentioned consists of ferrite and pearlite; both can be distinguished, as metallography shows, by the ferrite which hardly changes its color on etching with alcoholic nitric acid. Only by a longer etching period it becomes weakly yellow and rough, Fig. 81. The ferrite is a very soft constituent, while the iron carbide, which is present here only as eutectoid, is very hard. Its metallographic name is cementite and it is only but slightly attacked by the acid, so that compared with it, the ferrite of the eutectoid appears dark. This is the reason why pearlite, the color of which lies between that of its two constituents, differs decidedly from the ferrite with its dark color.

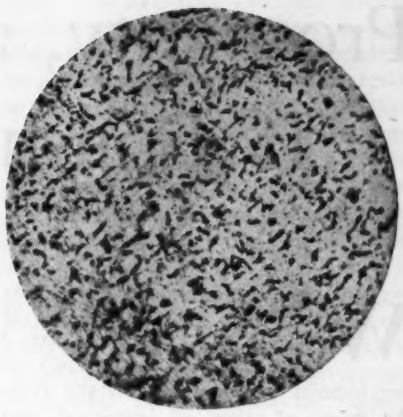


Fig. 81 (*Left*)—*Electrolytic iron, microscopically etched.* X 75. *Fig.* 82 (*Right*)—*Steel containing* 0.13 *per cent carbon showing ferrite and pearlite structure. Etched microscopically.* X 75

Railroads Spending Less

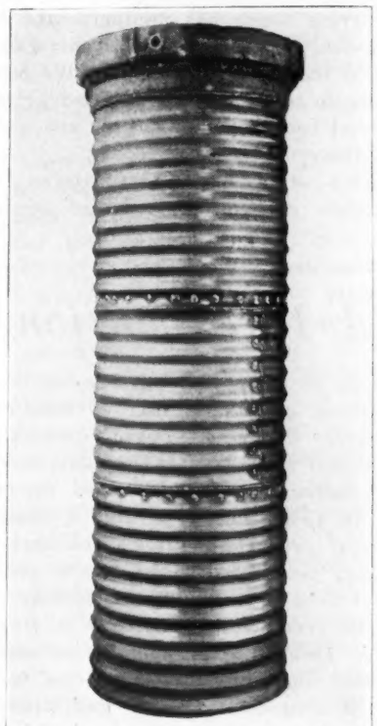
In the first nine months of 1928 class 1 railroads expended approximately $500,000,000 for new equipment and additions and betterments to properties used in transportation service, according to the bureau of railway economics. This is a decrease of $70,000,000 or 12 per cent from 1927 and $129,000,000 or 20 per cent from 1926. It is estimated that the 1928 total of expenditures of class 1 railroads will approximate $650,000,000, compared with $771,552,000 in 1927 and $1,059,149,000 in 1923, the banner year since the war.

A rush order for malleable castings was delivered by the Lancaster Malleable & Steel Co., Lancaster. N. Y., to the Brown-Lipe Gear Co. at Syracuse, N. Y., by airplane recently.

Annealing Pot Made from Stainless Steel Sheets

EVIDENCE of the successful welding of stainless steel is offered in the construction of a new type of annealing pot, a development of the Fusion Welding Corp., 103rd street and Torrence avenue, Chicago. The pot is approximately 7 feet high and has an outside diameter of about 24 inches. The body of the pot is made of stainless iron containing 18 per cent chromium and 8 per cent nickel. It has a wrought steel base plate ⅞-inch thick and a wrought steel collar on the top 1-inch thick. Eight carbon steel rods, ½-inch in diameter, are welded to the collar and the base plate to take the lift.

The shell of the pot is of 14-gage corrugated stainless iron, formed first and then riveted, as shown in the accompanying illustration, the riveting being primarily for the purpose of retaining the proper shape and not to afford extra strength. A steel plate is welded inside the pot so that coils of wire can be removed easily and will not be caught in the corrugations of the outer shell.



One of these pots was put into service in annealing wire at temperatures ranging from 1350 to 1400 degrees Fahr. At these high temperatures, it is stated, the outside shell showed no sign of scale over its surface or interior. This is a distinct advantage when the life of the pots is to be considered. After being used in 75 heats of wire and being subjected to annealing temperatures for several hundred hours, no hair cracks or fractures were discernible in any of the welds. Because of the marked difference in the co-efficient of expansion between stainless iron and the mild steel of the welds, it was thought that trouble might develop at the welded joints. The ductility of the weld being sufficient to take care of the difference in expansion and contraction of the two metals when heated explains the absence of cracks or fractures.

Prosperity, a 'Complex,' Endangered If Consumption Not Mastered

By Virgil Jordan

WHEN the records are all in at the end of this year I think 1928 will go down as the biggest year in our history from the point of view of industrial and trade activity, in the amount of electric power used by industry, building construction, steel production, automobile production, output of agricultural implements, copper production, cement production, gasoline production, industrial consumption of rubber and others. It is especially significant that the undercurrent of talk of profitless prosperity has subsided and given place to a general confidence and even enthusiasm summed up in the universal use of the term "prosperity", unqualified.

Yet, I do not believe that the overworked word term "prosperity" ever has had less real and definite meaning or has been more uncertain and questionable than it is today. I do not believe there has been any time in our experience, outside extraordinary periods of war, of which it could be said that our situation has been marked by greater danger or about which more serious questions could be raised than that which we face now. When we have passed through it, successfully or unsuccessfully, I feel 1928 will go down as a crucial year in our economic life, for in it we have come face to face with certain new, fundamental and unsolved problems of economic control and adjustment, and the future depends upon how clearly and generally we recognize these problems and how earnestly we attempt to deal with them in the next few years.

This is said not with the idea of inciting fear, but with the deliberate intention and hope of jarring the business public out of the complacent slumber of self-satisfaction into which it has been lulled. This country now is firmly in the grip of what may be called a "prosperity complex."

Patented Process for Prosperity

We have reached a state of mind in which we are ready to believe that anything is possible and that it does not matter much what we do; that everything is for the best in this best of all possible countries, that our position is unshakable, that we have discovered a mysterious secret or patented process of permanent prosperity and progress which has no limits and no necessary relation to what is going on in the rest of the world. We have come to talk confidently as though we almost had abolished poverty and want in this country.

This state of mind, fostered by reckless inflation of language as our domestic, economic life is by inflation of credit, is essentially a psychological disease. To me at least, it seems less important today that we boast to ourselves and to the world of our prosperity and security than that we try to realize more clearly how far we truly are from a condition of general and enduring prosperity in this country as well as from a sound and constructive position in our relation to the rest of the world.

Not only is this prosperity of ours full of puzzling light and shadow, when considered from the point of view of abundance of employment and fairness trialists and business men but also we are struck by the uncertainty and unevenness in their success. Not only is it true that despite the high levels of wages in some occupations the expenditures for charitable relief work in our larger cities have increased much more than the population during recent years; but from great groups of business men in industry and trade there has gone up in recent years a cry for relief as they have felt themselves starved in the midst of plenty. In business enterprise, as among the working population, the prosperity picture is painted in contrasts more deep and striking, and these contrasts today are ignored more completely than ever before. I need not repeat here the now familiar fact that in the last three years of

From an address presented at the annual meeting of the National Founders association at New York, Nov. 21-22. The author is chief economist, National Industrial Conference Board, New York.

Business Must Avoid Intervention by the Government

THE difficulty today is that production is financed more rapidly and fully than consumption, and this difficulty cannot be solved by any further financing or reorganization of production which increases the purchasing power of the investor's dollar and decreases that of the consumer's. In the long run such an effort must defeat itself not only because a restriction of production involves a restriction of consumer purchasing power, but because the relatively high and protected returns to capital under such a system are bound to invite over-investment and increased competition leading in turn to excessive production and falling prices under which the whole system will break down unless the government or some outside authority steps in to control.

Such a principle is not only fallacious but dangerous, first because it is bound to stimulate increasing class conflict as between wage earners and investors, which we cannot assume will be mitigated materially by the kind of popular investment in corporate securities which has developed in recent years; and what is far more important it must lead inevitably to government intervention much more far reaching than that with which business has now to contend under the existing antitrust laws. It seems obvious to me that business cannot ask of government a free hand in the control of production and competition and the regulation of prices without finding itself forced to lean upon governmental authority to support and sanction the arrangements made and without thereby inviting the government to take an active part in the control of production and prices.—VIRGIL JORDAN.

prosperity the proportion of corporations reporting deficits in all lines of trade together was 41 per cent in 1925, 43 per cent in 1926 and, according to the statistics of income just released, rose to 45 per cent in 1927.

Not only do these contrasts show themselves so strongly within each field of business enterprise, but more fundamental and serious still is the contrast emphasized in recent years among the various major branches of our industrial structure. You can go through the list of industries and trades in this or any other country and separate the sheep from the goats from the point of view of relative prosperity, and you will find everywhere that the goats are those basic industries providing the fundamental requirements of food, clothing, fuel and transportation. Everywhere it is the industries catering directly to the new wants and consumption habits of the population, providing the luxury goods and services which make for the high standard of living about which we talk, that have been stimulated most strongly and have enjoyed the greatest prosperity. This prosperity has been achieved in part at the expense of the older industries furnishing the basic materials and the fundamental services. The result has been a fundamental dislocation of our industrial structure presenting a fundamental contrast of stagnation in the basic industries with feverish activity in special fields which has strengthened the illusion of general prosperity.

Fundamental Questions Raised

Among the nations as among the various industries the same contrasts have been emphasized in the years since the war. Sheltered behind tariff walls and immigration restrictions, with almost self-sufficient abundance of natural resources, with credit resources expanding on the basis of half the world's horde of gold, we have lived in an economic world of our own.

These conditions, with which we are all familiar, even though we do not like to talk about them, inevitably have raised fundamental questions in the minds of economists and many business men as to the inherent stability and soundness of economic conditions in this country. When shall we be confronted squarely with a real problem of unemployment growing out of our increased productive efficiency and the dislocation of our industries? How soon will our agricultural depression come home to roost in the form of higher food prices for city workers? How will the excess capacity and the superfluous independent enterprises in industry, trade and agriculture be liquidated and the losses distributed? How soon will activity in the newer industries and the financial and speculative field be brought into some reasonable relation to the fundamental productive activity of our basic industries? How long can our export trade continue to grow without restoring the productive and purchasing power of other nations and bringing our trade and financial relations with them into equilibrium?

We ought, I feel, to take stock earnestly of the situation and bring what knowledge we have to bear upon these questions. In my opinion, they all resolve themselves into the question whether the relations that have existed heretofore between wages, prices and capital returns have or have not been altered permanently and whether or not we have entered into a period in which business is to be governed by a wholly new set of economic laws which will involve a fundamental reorganization of business in respect of competition and government control and a fundamental change in financial structure and policies in respect of the control and distribution of credit.

On this central question there are two fundamentally opposing points of view. One is that the maladjustment between wages, prices and capital returns, which has grown out of apparent overproduction and is the apparent cause of the difficulties and contrasts in many lines of industry and trade, must be met by a fundamental reorganization of the business structure. The anti-trust laws and government policy toward business in general, it is declared, must be modified to permit a greater freedom of action in trade association and combinations to control production, restrict competition and regulate prices. In this way it is anticipated that a sounder relationship can be established between wages and prices from the point of view of capital returns as a result of the increasing pressure upon employment which would flow from the closer integration and improved efficiency of industrial processes. Capital charges or normal profits would be made a fixed charge upon industry through control of production and prices instead of wages being a fixed charge and capital return a contingent charge as is now the case. On this principle an effort would be made and the possibility created to make production follow demand instead of as now, trying to raise demand to meet production.

Consumption Out of Balance

With this idea I disagree fundamentally. I recognize that this process has taken and is taking place rapidly here and abroad and I would admit there is a large and proper field for such reorganization of the business structure for improvement in conditions even without any revision of governmental policy toward business. But I am convinced that in the long run it is fundamentally fallacious and dangerous to believe that the essential economic problems which we face are going to be solved in this way. Those fundamental problems are the expansion and diffusion of consumer purchasing power at home and abroad in proportion to the expansion of our production and productive capacity.

In recognition of the dangers in this direction there is a slowly growing realization that the solution of the problem balancing production and consumption can be sought most hopefully not in any general reorganization and limitation of production but in the field of financial and banking policy, which is the fundamental and universal factor underlying the whole economic situation because of its profound influence on the expansion, contraction and distribution of consumer purchasing power. In other words, from this point of view the evils of over-production are essentially evils of under-consumption, and they must be attacked not on the side of production so much as on the side of consumption. We are coming to realize more clearly that, contrary to the views of traditional economic theory, general over-production as well as over-production in special fields is not

Banking Offers Solution

OUR main problem for the future, as I see it, is to develop such banking policies and methods as may prevent undue utilization of our credit resources through speculation, for the expansion of our productive capacity and increase of our overhead capital charges to stabilize the general level of prices and to keep consumer purchasing power in step with production. If we can find ways of doing these things through effectual control of the amount and distribution of our credit resources, industry and trade will adjust themselves to the new conditions of consumption and productive efficiency that now exist without too great a strain upon our business structure and without such far reaching changes in our business organization as would invite the danger of increased governmental intervention and control.

—VIRGIL JORDAN.

only possible but is inevitable so long as our banking credit and monetary policies do not permit us to utilize our credit resources to finance consumer purchasing power as rapidly as we finance our productive power.

It is clear that the entire circle of production and consumption upon which economic progress must proceed cannot be made complete and cannot revolve smoothly until we find some way of controlling and distributing consumer purchasing power domestically and internationally in relation to productive power, and this can be done only through our national and international banking systems whose fundamental function is the accumulation and distribution of credit resources.

Evolution of Financial Methods

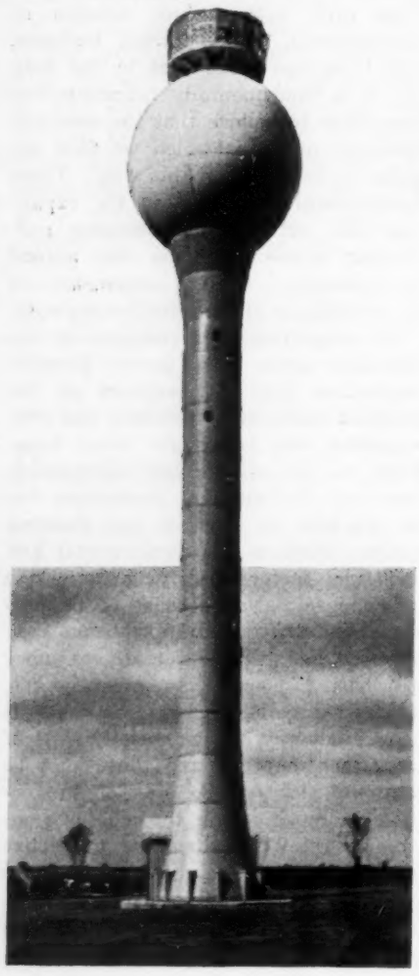
In this country at present we are in the midst of a profound evolution in financial methods and policies the outcome of which is impossible to foresee. The striking contrast between financial activity reflected in the course of security prices and business activity reflected in commodity prices and the volume of production and trade is but an extreme expression of the problem of credit control and distribution with which our banking system is faced. Though it is minimized and disclaimed officially, the so-called struggle between the federal reserve system and the stock market is a real and significant aspect of this problem of credit control. The powers and policies of the federal reserve system to exercise a critical control over the distribution of credit power and consumer purchasing power are entering upon a crucial period of trial the full meaning of which little is realized. Though still limited in its scope and functions by traditional theories of banking policy, the reserve system has made enormous progress toward a realization of its constructive possibilities in the administration and control of credit resources. It has developed probably the best measures of production, trade and consumption that have been devised; it has found means of keeping the closest watch upon the expansion of credit and the pulse of business opinion. More significant still is the fact that it has been able to function perhaps more effectively and creatively in the international distribution of credit than in its domestic control, and laid the foundations for international co-operation among the central banks of the world, an indispensable factor in preserving economic stability and promoting economic development at home and abroad.

But because of the limitations and deficiencies in its structure and authority it has so far been unable to exercise that control over the distribution of purchasing power internally which is fundamentally necessary for balanced economic development in this country. The initiative in the expansion of credit and in the utilization of individual and corporate savings has been taken out of its hands, and an enormous expansion of productive capacity has been financed out of bank credit far in excess of savings, without regard to the proportionate expansion of consumer purchasing power which is necessary to sustain this enormous superstructure of productive investment of bank credit. The consequence is that commodity prices have remained relatively low while the prices or values of capital equities have been inflated far beyond the limit of possible earnings on the basis of existing consumer purchasing power.

How the equilibrium between productive capacity and consumer purchasing power will be restored no one can say positively at this moment. The enormous investment of bank credit in capital expansion may have to be spent and written off without return or with much lower returns than the investors anticipated. Wages may have to undergo a further inflation without a corresponding inflation in commodity prices in order to bring the level of consumer purchasing power higher.

Federal Expenditures May Help

In any case, there seems to be no possible way of sustaining or liquidating the capital equities that have been created out of the productive credit expansion without a corresponding expansion or inflation of consumer purchasing power at home or abroad. The federal, state and local governments, through their expenditures for public improvements and public services, together constitute the largest factor in the control of consumer purchasing power. They are the only agencies that are able to draw upon credit resources in any considerable amount for purposes of direct consumption. It may be necessary, therefore, in the event of a general depression for the governmental agencies in this country to embark upon tremendous projects of public improvement and construction in order to sustain the general consumer purchasing power sufficiently to utilize our industrial capacity.



Novel Water Tank and Lookout Made of Riveted Steel Plates

STEEL plates varying in thickness from 5/16-inch to ⅝-inch were used in the erection of the peculiarly shaped water tank shown in the accompanying illustration. The plates were fabricated at the western plant of the Chicago Bridge & Iron Works, Chicago, and erected by one of that company's field crews at the Wentz boy scout camp near Ponca City, Okla. The tank will furnish the general water supply for the camp.

Shaped something like a giant scepter, the structure consists of a spherical tank mounted on the top of a cylindrical tower. The tank is 21 feet in diameter and has a capacity of 30,000 gallons of water. The tower is 7 feet in diameter and 75 feet high. It encloses a circular stairway which extends through the tank to a lookout platform. This platform is 10 feet 6 inches in diameter and is 94 feet above the ground. A lattice fence surrounds the outer edge of the platform. Telescopes and searchlights are provided for observation purposes on the lookout porch.

National Founders Discuss Problems of Marketing and Profits

A WELL-rounded program was provided the more than 225 members present at the thirty-second annual convention of the National Founders association at the Hotel Astor, New York, Nov. 21-22. Cost and production problems, industrial education, labor and legislative questions came up for serious discussion. Sales and business methods and broad economic phases also were presented.

William H. Barr, preident of the association for the past 15 years, declined to stand for renomination. T. S. Hammond, president of the Whiting Corp., Harvey, Ill., was unanimously elected to the office. The list of new officers elected at the convention is presented in the box shown herewith.

Excellent labor conditions at member plants were indicated in the address of the retiring president, Mr. Barr, who reviewed briefly the progress of the association from the time of its founding. The annual dinner was presided over by James A. Emery, association counsel, an address being given, "The Dimensions of Life," by John L. Davis, D.D.

Of exceptional success was a convention breakfast, which was attended by more than 50 members and dominated by a lively discussion of foundry salesmanship. C. H. Hoffstetter of the Odin Stove Mfg. Co., Erie, Pa., presided.

Financing of Consumption Most Needed Factor

DESCRIBING present-day prosperity as a state of mind rather than a fact susceptible of demonstration, Virgil Jordan, chief economist, National Industrial Conference board, New York, declared that the weakness in the present situation is that production is being more rapidly financed than consumption. He, therefore, believed that the solution lies in the field of finance and banking. Extracts of the more significant statements from Mr. Jordan's address are to be found on Page 1378 of this issue of IRON TRADE REVIEW.

The innovation inaugurated by a round-table breakfast Thursday morning under leadership of C. H. Hoffstetter brought out valuable suggestions in relation to foundry salesmanship. Mr. Hoffstetter emphasized the need for personal contact with the trade, through acquaintance with officials of customer firms, honest, painstaking service and a knowledge of trade requirements of castings sold.

Cites Poor Selling Methods

W. H. Worrilow, Lebanon Steel Foundry, Lebanon, Pa., affirmed the value of personal contacts, but stated that in general, castings are poorly sold. He said that executives will spend large amounts on cost systems and hours in determining what costs govern certain castings and then in a few minutes will discard this knowledge and cut costs to meet a competitor's bid.

Training salesmen, said Mr. Worrilow, is a most important duty of foundry managers. Cost systems are a basic need and having a cost system, the seller should have the faith of his convictions and refuse to quote on a competitor's bid. It is the duty of every sales manager to go over cost sheets. Those jobs which show a profit should be continued, but those which show a loss, should be blue penciled and the castings salesman should sell the customer on the need for a higher price on the losing work.

W. H. Kleppinger, Calumet Foundry & Machine Co., questioned whether contacting the higher executives might not alienate the good will of purchasing agents, who might feel slighted by thus going over their heads. This might be avoided, according to other speakers, by executives of foundries making the acquaintance of executives of customer firms and leaving the actual selling to foundry salesmen, working through the buyer's purchasing departments. Mr. Kleppinger stated that many valuable leads to new accounts might be secured through old customers.

James A. Emery condemned the pending Shipstead bill, which proposes that the restraining powers of a court of equity shall never be exercised save for the protection of physical property, and the proposed Norris bill. The latter proposes to leave the vast body of litigation involving the most serious questions of constitutional rights and of litigation between citizens of different states or citizens and aliens, for which the national courts were primarily created, to the courts of respective states and subject to the existing regulation and modification or to repeal by 48 legislatures, the speaker declared.

Court Procedures Differ

The courts of these states so differ in procedure, interpretation and right of appeal as to leave the rights of the litigant in uncertainty. They would so lack uniformity of the rule of decision he said, as to permit the constitution subjected to their varying interpretations to mean one thing in one state and another thing in another state. All uniformity in procedure and interpretation developed by 140 years of federal jurisprudence would be lost, Mr. Emery said.

Touching upon the effect of this bill on business should it be enacted, he pointed out that investments of citizens flowed from older communities into newer states. Nonresident investment was based upon a century's assurance of the right to resort to national courts for protection of legitimate rights. This flow will continue to be made possible only by the continued confidence of capital in the firm enforcement of impartial law unaffected by local opinion. No more serious blow could be struck at na-

New Officers

NATIONAL FOUNDERS ASSOCIATION

President
T. S. HAMMOND
Whiting Corp., Harvey, Ill.

Vice President
D. F. O'BRIEN
A. P. Smith Mfg. Co., East Orange, N. J.

Secretary
J. M. TAYLOR
29 South LaSalle street, Chicago

Treasurer
CHICAGO TRUST CO.
Chicago, Ill.

tional development, Mr. Emery said, than to imperil confidence of the distant investor.

The Shipstead bill, ostensibly aimed at prohibiting issuance of injunctions in labor disputes, undertakes, Mr. Emery stated, to accomplish its purpose by destroying the injunctive remedy for the private individual and the government in every field.

Distribution Important Problem

Stating that the country is face to face with the problem of distribution Charles F. Abbott, executive director, American Institute of Steel Construction, New York, placed responsibility for its solution on the merchant. He declared the organization of industry, including co-operative advertising and selling, is becoming and will become the paramount issue of the day. It is up to the merchant to take steps for the application of principles of salesmanship to his entire industry as much as to his individual company. He condemned many methods of present-day competition.

He urged a new code of business ethics. He emphasized the need for a check on mergers and consolidations and described it as suicidal for business to run to Congress every time it had a problem. The latter procedure, he declared, is merely inviting paternalism. Business men must learn to regulate themselves if they wish to avoid state socialism.

Discussion on foundry practice was featured by two papers, one by H. V. Crawford, General Electric Co., Schenectady, N. Y., entitled "Automatic Blast Gate Control for Cupolas," and the other by H. M. Lane, Detroit, entitled "Melting Practice." Both addresses were illustrated by lantern slides. In Mr. Crawford's address he outlined experiments in cupola practice and described a device designed to give more effective combustion.

He described the automatic blast gate control as a device by which the air is actually weighed. So many pounds of air containing so many pounds of oxygen can be delivered to the cupola to burn so many pounds of coke in a definite time. In other words, Mr. Crawford said the equipment can be considered as scales for weighing the air. He said the foundryman can determine the proper relation of coke and air to give best results.

Mr. Crawford also dwelt upon the effect of excess oxygen, the effect of insufficient oxygen, of pressure, method of control, and blower characteristics.

Declaring that foundrymen should become oxygen-minded instead of air-minded, Mr. Lane discussed many important phases of cupola practice. He weighed the relative merits of the electric furnace and the cupola, asserting that while the former is highly effective in certain cases, the cupola, in his opinion, will always be widely used. From a fuel standpoint he thought the cupola the most efficient furnace ever devised.

The substitution of oil for a portion of fuel in melting was the next important step, the speaker declared. In some sections, where coke is fairly high priced and oil low priced, a saving can be shown.

He described some experiments in the use of powdered coal. In this case, he said, the coal is burned in auxiliary combustion chambers outside of the cupola. As in the oil fired cupola, the bed must be built up at a rate proportional to the excess of air introduced. In both cases, the element of hydrogen is injected.

Efforts to Utilize Waste Heat

The speaker outlined efforts to utilize waste heat and described briefly a recently developed hot blast cupola. He said a practice similar to that followed in blast furnaces is followed and such products of combustion as are extracted are burned with the addition of a small amount of oxygen and used to preheat the blast. Mr. Lane believed that efficient cupola practice would result from a combination of the hot blast system and automatic blast gate control of ingoing air.

The speaker discussed types, which he classified as special furnaces and also interestingly described various installations of electric furnaces. He divided the latter into two classes, the direct and indirect arc. The speaker said that electric furnace iron has a few advantages.

On the operation of direct arc furnaces, Mr. Lane stated that a third method has recently been put into commercial operation, which calls for a fairly large furnace so that the process may be continuous.

Foundries Profit by Uniform Cost Accounting

FOUNDRY costs were the subject of an animated discussion, led by John L. Carter, general manager of the Barlow Foundry Inc., Newark, N. J. Evidence was produced by various speakers to show that participating foundries virtually without exception have profited not only in uniformity of cost accounting methods, but in production problems and conditions generally. The advantages of local cost groups were especially stressed.

Relative to prices, Mr. Carter said that members of the Newark cost group, for instance, upon the occasion of a distribution of theoretical cost problems, were within a ¾-cent variation, while the non-members were within a variation 5 to 15 cents.

"There is absolutely no price maintenance in this plan," Mr. Carter said. "We stop at cost. There is still competition among our members, but it is fair and honest and sound competition. It is based on efficiency."

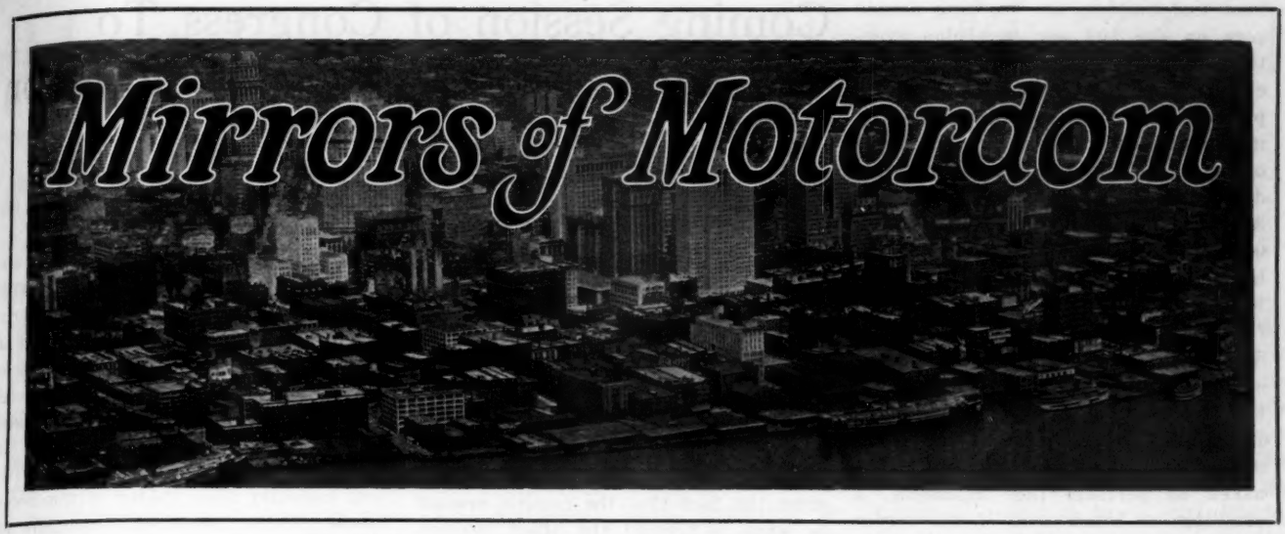
He regarded comparative cost reports as highly valuable, and stated that in his own foundry they had saved $5000 a year on cleaning costs.

Discusses Foremanship Training

A feature of discussion on foremanship training was an illustrated address by L. A. Hartley, association director of industrial education. He described measures employed with considerable success at the plants of the Frigidaire Corp., Dayton, O., and the Ohio Brass Co., Mansfield, O. Here the foremen were first put through a special training of a year or so, and then, in substance, called upon to keep a check on their men on the following questions: (1) Willingness to follow instructions, (2) cleanliness and orderliness, (3) care of property and materials, (4) ability to work well from whistle to whistle, (5) dependability, and (6) ability to co-operate.

The foreman reports on these questions, but the workman always has recourse to the personnel head if he believes injustice has been done. Then there are questions as to whether the workman owns his own home, or is buying one, or has a savings account and questions as to how many he supports, etc. These are all designed to bring about a happier living condition and, in turn, a more efficient workman.

John Alden Grimes, treasury department, Washington, urged the association to make depreciation studies in co-operation with the bureau of internal revenue, asserting that it would redound to the advantage of the government and companies alike.



Inventory is Next Hazard for Auto Production

* * * * * * * * *

General Motors Lines Are Being Further Revised

Detroit, Nov. 27.

AUTOMOBILE industry is gradually coming out of the air pockets into which it tail spinned when it curtailed output while bringing out new models. The recovery so far is only partial, since inventory-taking time is just ahead and steel specifications will be pared down accordingly. November steel tonnage, while high compared with other Novembers, is lower than September or October. During December, however, specifications for shipment in January will resume their accustomed and in most cases accelerated pace.

In spite of the fact that many automobile companies will make few cars between Dec. 15 and Jan. 3, it is almost a foregone conclusion that 1928 will go down in history as breaking all previous high records. Plans already are being laid for higher output next year by increase of at least 25 per cent.

In 10 months of this year 2,869,009 passenger cars and trucks were produced. In the comparable period of record 1926 the aggregate was 3,874,563, or only 5554 more than this year. Since 256,300 were made in November, 1926, and 167,922 came off the lines in December of that year, a total of 424,222 for the two months, it leaves 1928 with but 429,777 cars and trucks to be made to break the record by one, or an average of 214,888 for this and next month.

That this will be easily possible is generally conceded, chiefly for the reason Ford output is mounting daily, running from 5300 to 5900 for domestic assembly and 500 for Canadian. One day last week domestic assembly reached its highest since the new model's appearance, namely 5913 Ford's ambition to reach 10,000 daily by January will hardly be accomplished and that figure has been revised to 7000. At 6000 a day Ford will make 120,000 of the 214,888 required this month to make 1928 a record and possibly more in December, leaving only 94,888 to be made up by other cars, during November, and a smaller number in December.

* * *

ALONG with the formal presentation last Saturday of the new Chevrolet six (seven passenger models and three trucks) General Motors announced a new and larger Pontiac six to remain within the smaller six price range. This will probably reach production about Dec. 15, for formal presentation at the January shows. Production of the new Oakland is growing, now averaging 400 daily. The trade here understands General Motors will discontinue the present Oldsmobile six and substitute an eight to sell at about the price of the present six. In connection with the Chevrolet six, since a week ago last Tuesday, when six were made up, production has been gaining, limited only by inability to obtain brass radiator shells. Between 15,000 and 20,000 cars now are ready except for these.

A total output of about 60,000 is planned for November, and 75,000 or more for December. Everything is being tuned up for uninterrupted deliveries after Jan. 2 and campaigns are being laid for a 1929 output of 1,250,000 to 1,500,000.

* * *

HUDSON is working on its new eight as well as a new and higher priced Essex. Graham-Page, which has been making 100 or 125 daily so far this month, now approaches an idle period to bring out new models. Dodge has put out a few of the new Victory six. It probably will operate at a low rate until January. Chrysler-Plymouth-DeSoto are being made at the average rate of 1250 daily. This undoubtedly will be reduced next month when inventories are taken. Packard is making 200 cars daily, including 160 of the smaller size. Cadillac and LaSalle are appearing at the rate of 100 and 125 daily, respectively. Approximately 35 Lincoln cars are being made each working day. Hupmobile, which last Friday took over the Chandler-Cleveland Motor Corp., is making 300 daily. Studebaker-Erskine is at 150 daily, and General Motors truck at about 90 trucks daily plus 20 coaches, buses, etc.

* * *

MACHINE tool purchases by automobile companies and parts makers continue large. Ford has placed a large order for lathes, chucks, grinders (internal and surface), as well as other tools with the Norton Co., other orders going to Heald Machine, and Reed-Prentice companies. Orders, too, have been divided among these three builders by General Motors, Chrysler and others, the former buying lathes, automatics, presses and small tools. As a result, New Eng-

land tool builders are working double turn or else 100 per cent plus overtime. The Fisher Body Co. is to purchase four more special hydraulic presses, such as the one developed by its superintendent, now installed and operating. This press performs five distinct actions simultaneously, weighs 345 tons and cost approximately $85,000. More of this machine is located beneath the plant floor than above it. For practically the first time a metal fabricating shop in the automotive industry has co-operated with the sheet steel industry to give steel the advantage in eliminating the more severe draws. This possibly heralds the dawn of a new era when steel will not be asked to perform the impossible, a condition so much true of the recent past.

* * *

FRESH records are to be made in 1929 in piercing foreign markets, unless present plans of auto makers fail. The present year will show a gain of at least 25 per cent over 1927. H. J. Klingler, sales manager of Chevrolet, states that 1,000,000 of that make will be exported annually within the next few years. Its total for 1927 was 460,305 and this year's is much larger. In this connection, the incorporation of the Ford Motor Co. Ltd., Regent street, London, Eng., at £7,000,000, to manufacture model A cars and model AA trucks at Dagenham, Eng., possibly means the curtailing of Ford's exports. An initial output of 200,000 cars is being planned and this will increase Great Britain's exports at least five times over. The Manchester, Eng., assembly plant will be retained. Tractors will be produced in Cork, Ireland.

* * *

ALTHOUGH Detroit employment continues to decline, reaching 276,932 for the week of Nov. 22, the fifth consecutive falling off, this represents 82,241 more employes than in the same week a year ago. Figures are issued by the Employers' association of Detroit and include two-thirds of the factory workers in the Detroit area.

* * *

AUTO parts makers are enjoying the most prosperous fourth quarter in their history. The year will close with new high records in production as well as sales and plans are being perfected for higher records in 1929. Shipments by the members of the Motor and Accessory Manufacturers' association to car and truck manufacturers in October were 129 per cent of last October.

Coming Session of Congress To Pass Little Business Legislation

By Lynne M. Lamm

WASHINGTON, Nov. 27.—Present prospects for any strictly business legislation at the second session of the seventieth congress which convenes here on Dec. 3 are slight, according to those who are closest to the Coolidge administration and to those leaders in the house and senate who have the program in charge.

In this connection it is well to consider the fact that the coming session is what is termed the short session, which expires at midnight, March 3, whether or not the members of congress so will. At this so-called short session, which occurs every two years, congress generally has about all it can do to legislate the appropriations for the various branches of the government in the less than three months in which it is in session.

While there will be no tax legislation at all this session, the outlook at this time is that there will be some hearings in connection with tariff revision, in spite of the fact that there is no chance of any kind of legislation at this session.

Legislators are departing, in holding hearings at this session, probably shortly after Jan. 1, from the "ways of the fathers" in that one congress will hold hearings for legislation which will be passed by an entirely different congress and composed of different men. This has never been tried before.

As to the tariff situation, it is reported here by those who claim to know what Mr. Hoover has in mind, that if the hearings to be held in January go along smoothly and look like the tariff could be enacted without much trouble, that a special session will be called. That is, Mr. Hoover wants congress to get away from Washington by July at the latest. If this seems impossible, it is said that he will ask that the subject of tariff revision go over for another few months, or until the regular December session in 1929.

The question of a special session is much in the air at this moment. It is said by those who claim to know what is in the mind of the present administration that Mr. Coolidge will attempt to get some farm legislation through at this present short session. He wants to leave the White House, it is said, with farm legislation to his credit and moreover he wants to leave the slate as clean as possible for his successor.

Influential members of congress are on opposite sides of the fence with reference to a special session early in the spring. Senator Borah, of Idaho, who has been most friendly to Mr. Hoover, is insisting on a special session for both farm legislation and tariff, while Speaker Longworth is opposing it, as is Representative Tilson, majority floor leader of the lower house. Other prominent members of congress are lining up for and against an extra session.

Representative Wallace H. White Jr., chairman of the house committee on merchant marine and fisheries, having charge of shipping legislation, has stated positively that there will be no "major" merchant marine legislation at this short session. He was the author of the shipping bill of 1928 and states that it has not had sufficient time to be tried out to find out its faults, if any.

Among some of the major matters to be taken up at the coming session are included the Kellogg peace treaty, Muscle Shoals and Boulder Dam. Indications are there will be no legislation on the latter. The President has again recently stated his opposition to the government operation of Muscle Shoals.

Scrap Chapter Organized at Pittsburgh

Iron and steel scrap dealers from the Pittsburgh, Youngstown, Cleveland, Canton and allied districts organized the sixth chapter of the Institute of Scrap Iron and Steel at a meeting in Pittsburgh, Nov. 21. Charles Dreifus, of the Charles Dreifus Co., Pittsburgh, was elected president, and H. N. Trimble, Pittsburgh, chairman of the executive committee. Benjamin Schwartz, director-general of the institute, New York, explained the purposes of the institute and declared that all consumers, producers and dealers in iron and steel scrap should welcome a central body which can deal with specifications, ethics, freight rates, arbitration, credit information and similar matters.

Carnegie Research scholarships of the Iron and Steel institute were founded in 1900.

Must Find New Outlets for Coal

Bituminous Fuel Producers Urged to Conduct Research Program as Means for Expanding Markets and for Curing Overproduction Evil — Science of Coal Utilization Is Widely Discussed

LATEST developments in utilization of bituminous coal were described before the scientists and engineers from various nations, gathered at the Carnegie Institute of Technology, Pittsburgh, last week. The occasion was the second international conference on bituminous coal, a conference organized two years ago by Dr. Thomas S. Baker, president of the Pittsburgh school. The more than 1000 delegates present included representatives from 14 foreign countries.

The six-day meeting was well occupied by morning and afternoon technical sessions, at which discussions touched upon a multitude of subjects relating to the composition, uses and potential utilization in commercial form of bituminous coal. On most days four separate sections met concurrently.

Uses of Pulverized Coal

Pulverized coal use evoked considerable interest, three sessions being held for the discussion of various phases of this subject. Dr. George E. K. Blythe, general manager, Buell Combustion Co. Ltd., London, in discussing the various fields of application of pulverized fuel, predicted an increasing use in the near future. He cited the instances of economy through the use of this type of fuel and described the details of the unit and the storage pulverized fuel systems. Dr. Blythe suggested that pulverized fuel firing eventually may revolutionize the process of steam raising.

A discussion on the burning of bituminous coals in pulverized forms, presented by Henry Kreisinger, research engineer, Combustion Engineering Corp., New York, included a comparison of the process of burning this type of fuel with that of burning gaseous fuel and fuel oil. This paper also pointed out why pulverized coal is more difficult to burn and requires a larger furnace. Fixed carbon burns slowly, it was stated, and is burned by bringing oxygen in contact with the coal particles. Intensive mixing in the furnace greatly increases the rate of mixing particles of coal and oxygen in contact. For this reason burners and furnaces are designed to give intensive mixing. The combustion process of various bituminous coals as affected by the nature of the coal and the volatile matter contents also was touched upon.

James W. Armour, vice president and engineering manager, Riley Stoker Co., Worcester, Mass., compared the modern stoker with pulverized coal firing, describing the advance made in the past few years in design and application of stokers. Competition of pulverized coal has aroused interest in stoker design in recent years, it was stated, and an accurate comparison of the two methods of firing must be made between plants which are installed and operated under the same conditions.

Marine use of pulverized fuel was described by C. J. Jefferson, head of the fuel conservation section, United States shipping board, New York, and Commander J. J. Broshek, officer-in-charge, fuel oil testing plant, United States navy, Philadelphia. This paper included a discussion of the development work carried on at the test plant of the board and a report on the performance of the MERCER, the first sea-going cargo vessel to use pulverized fuel for steaming purposes. It was asserted that the successful application of pulverized fuel to marine boilers affects the coal industry in general to a far greater extent than would be evidenced by the movement of bunker coal at various seaports.

Consider Transportation Systems

Discussing the transportation of pulverized coal, Dr. Ing. I. P. Goossens, consulting engineer, Aschen, Germany, presented figures showing that a compressed air piping system that does not make use of mechanical parts is the most economical method for distances up to 10 kilometers. For distances over 10 kilometers, special transport wagons are recommended. Transportation in pipe lines by a pumping system was regarded less favorable than the compressed air method.

Considerable attention was given a description of the recently-developed process for the manufacture of synthetic gasoline, now actively engaged in by Germany. Dr. Carl Krauch, director of the I. G. Farbenindustrie Aktiengesellschaft, Ludwigshafen am Rhein, Germany, discussed the various difficulties overcome in the commercial development of the system. The company now has in operation an extensive plant at the Leuna Works for the production of gasoline, the annual production of which now amounts to about 70,000 tons. It is planned to increase this by the end of next year to about 250,000 tons. Dr. Krauch was introduced by Walter C. Teagle, president of the Standard Oil Co. of New Jersey.

The economic side of coal was touched upon by several speakers, with special reference to plans for eliminating the depression that now grips the industry in the United States. Diversification of product and discovery of new uses for coal were offered as remedies for curing the overproduction evil.

European Developments

In Europe the science of utilizing coal has gone far ahead of its development in America, F. zur Nedden, German delegate, pointed out, stating that economic necessity has forced the nations of the old world to make up through research what they lack in natural resources. "America has these resources in abundance and the spur of need has not been felt in her laboratories," he declared. "But it would be wise for America, with more coal than she can use, to find outlets for it in by-product industries that would employ surplus labor and utilize the capital tied up in the coal industry. Fifteen years ago 52 per cent of all German coal was sold raw while at present only 40 per cent is sold in its original state. The balance has been disposed of as briquettes, powdered fuel, coke, gas, electric power or oil.

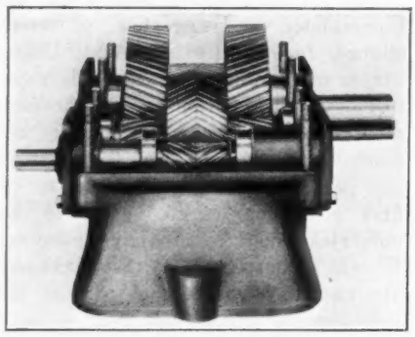
"New possibilities of coal, such as the manufacture of synthetic fertilizer, synthetic alcohol and synthetic gasoline, will prove hardly less attractive for this continent blessed with fertile soil and natural saltpeter, with wood for alcohol and with petroleum surging from the earth,

(*Concluded on Page* 1387)

Develops New Series of Speed Reducers

No. 284

Palmer-Bee Co., 1750 Poland avenue, Detroit, recently has placed on the market a new line of herringbone gear speed reducers. The series was designed to meet a demand for a strong efficient and enclosed gear reduction unit. Ball bearings are supplied on the high speed shafts with roller bearings on the intermediate and slow speed shafts. Gears are continuous-tooth herringbone with silent tooth form, producing more rolling and less sliding action than has been obtainable heretofore. The reducers are made in single, double and triple series sizes. The slow speed gears in the double and triple series are divided in the center, as shown in the accompanying illustration, permitting a symetrical arrangement of the gearing and a uniform load on each bearing. Following the practice of the automotive industry in using the three-point method of mounting motors in chassis, the manufacturer adopted this method in bolting the reducer to the subbase. No outboard bearings are required for overhung loads up to the maximum rated capacity of the reducer, it is claimed. Housings are made in two parts, adjoining faces being planed to insure a tight joint.



No. 284—Speed reducer

Designs Diesel Electric Powered Shovel

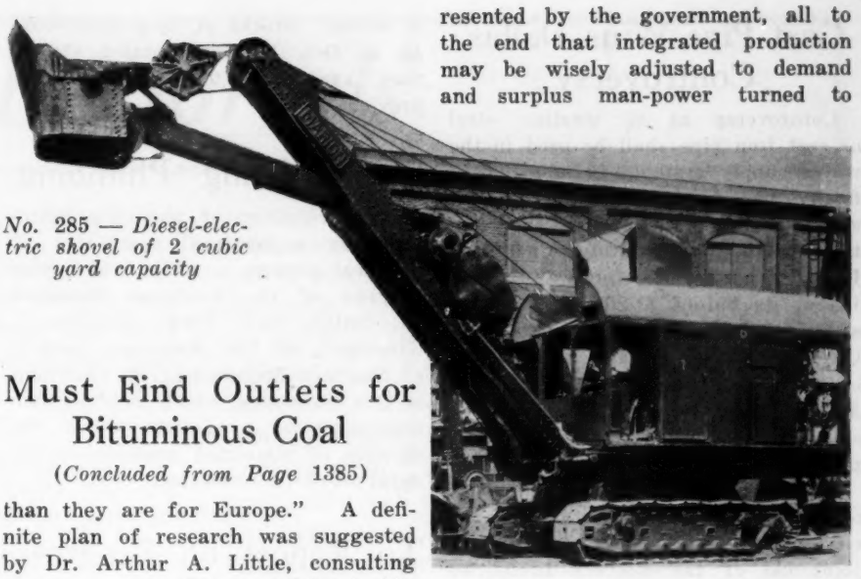
No. 285

Marion Steam Shovel Co., Marion, O., has announced the introduction to the trade of a new group of 2 cubic yard shovels. All are of the same general construction and capacity with uniform underframe and crawler construction; uniform boom, handle and dipper dimensions; and uniform crane, clamshell and dragline equipments. They are built, however, with three types of primary power supply—steam, electric and diesel-electric. Booms on the units are of the 25-foot railroad shovel type, combination wood and steel, with 17-foot inside dipper handles and 2 cubic yard dippers. Bearings are bronze bushed; drive is through spur gearing at all points of heavy tooth load. A patented handle spacer prevents "bowed" dipper sticks. The diesel-electric

Iron Trade Review's Calendar of New Equipment

Item	Comment	Builder	No.	Date Described	Page
Gas burner	For firing metallurgical furnaces	American Heat Economy Bureau Inc.	263	Oct. 25	1058
Arc welder	Gas engine drive; 60-300 amperes welding range	Westinghouse Electric & Mfg. Co.	264	Oct. 25	1058
Grinders	Portable electric; alternating and direct-current	Hisey-Wolf Machine Co.	265	Oct. 25	1059
Expansion joint	Double-guide construction; simple and rigid	Tobias Miller	266	Oct. 25	1059
Die head	For application to automatic screw machines	Landis Machine Co.	267	Nov. 1	1125
Gear tester	Tests and laps spiral bevel and hypoid gears	Gleason Works	268	Nov. 1	1125
Friction saw	Circular steel blade mounted on movable carriage	Joseph T. Ryerson & Son Inc.	269	Nov. 1	1125
Slitting shear	Portable; can be mounted in a vise or on a bench	National Machine Tool Co.	270	Nov. 1	1159
Milling machine	Table-type; horizontal boring, drilling and milling	Giddings & Lewis Machine Tool Co.	271	Nov. 1	1159
Speed reducers	Herringbone gears; roller bearings	Farrel-Birmingham Co. Inc.	272	Nov. 1	1159
Speed reducer	Worm gear vertical-type; roller bearings	D. O. James Mfg. Co.	273	Nov. 1	1160
Valve operating unit	Motor-driven; automatic operation of valves	Cutler-Hammer Mfg. Co.	274	Nov. 1	1160
Vibrating screen	For reclaiming used foundry sand	Link-Belt Co.	275	Nov. 8	1188
Brake	Mechanically operated; shoe type	Electric Controller & Mfg. Co.	276	Nov. 8	1188
Pneumatic hammer	For cutting and knocking out rivets	Ingersoll-Rand Co.	277	Nov. 8	1189
Back stop and coupling	Prevents reversal of travel; no friction surfaces	D. O. James Mfg. Co.	278	Nov. 22	1318
Electrode	Produces dense weld of greater ductility	Lincoln Electric Co.	279	Nov. 22	1318
Drill	Portable ¾-inch type; aluminum frame	United States Electrical Tool Co.	280	Nov. 22	1319
Door hoist	Operates open-hearth furnace doors; single motor drive	Blaw-Knox Co.	281	Nov. 22	1319
Goggle valve	Hand operated; for use on gas lines	Edgar E. Brosius Inc.	282	Nov. 22	1319
Straighteners	Antifriction bearings; improved drive	Sutton Engineering Co.	283	Nov. 22	1319
Speed reducers	Single, double and triple series; antifriction bearings	Palmer-Bee Co.	284	Nov. 29	1386
Power shovels	Steam, electric and diesel-electric; 2 cubic yard capacity	Marion Steam Shovel Co.	285	Nov. 29	1386
Forging furnace	Automatic continuous vertical type	Marshall Blow Pipe Co.	286	Nov. 29	1387
Circuit breaker	Oil-type; for use in small installations	General Electric Co.	287	Nov. 29	1387

model, shown in the accompanying illustration, is a new development. A 150-horsepower diesel engine is direct-connected to a 50 kilowatt direct current generator with drooping voltage characteristic. The generator supplies the current for electric motors which furnish the power for the hoist, swing and crowd. For short periods and in typical shovel service the generators and motors are said to be capable of delivering several times their ratings.



No. 285 — Diesel-electric shovel of 2 cubic yard capacity

Builds Forging Furnace of Vertical Type

No. 286

Marshall Blow Pipe Co., 7431 Dubois street, Detroit, has designed an automatic continuous vertical forging furnace capable of handling continuously such unwieldy parts as automobile rear axle housings. Heat control is entirely automatic and temperatures are held uniform through a special pyrometric control. Percentage of rejects is said to be held to a minimum because of the accuracy of heat control and the timing of the forging exposed to the heat. Parts are conveyed through the furnace on a patented spiral conveyor, as shown in the accompanying illustration. The furnace is adaptable to the handling of front axles, conecting rods and similar parts as well as for upsetting operations of all kinds.

Oil Circuit Breaker for Small Installations

No. 287

General Electric Co., Schenectady, N. Y., recently has designed a new oil circuit breaker for manual or electric operation. The device is made in several sizes, being rated at 4500 volts, and 200 and 400 amperes. Single and double throw, 2, 3 and 4-pole types are available with interrupting capacities of approximately 20,000 kilovolt-amperes at rated voltage. The manufacturer recommends the circuit breaker for use in small plant and industrial installations, and for stations where a substantial breaker of moderate interrupting capacity is required.

List Foreign Trade Books

A selected bibliography of foreign trade, listing about 120 titles of standard books and references works most wisely used by American foreign traders, has been published by the National Foreign Trade council, 1 Hanover Square, New York. A five-foot foreign trade bookshelf of 40 essential books is included.

Must Find Outlets for Bituminous Coal

(*Concluded from Page* 1385)

than they are for Europe." A definite plan of research was suggested by Dr. Arthur A. Little, consulting engineer, and Robert Kleinschmidt, physicist, both of Cambridge, Mass., as a means for expanding the present market.

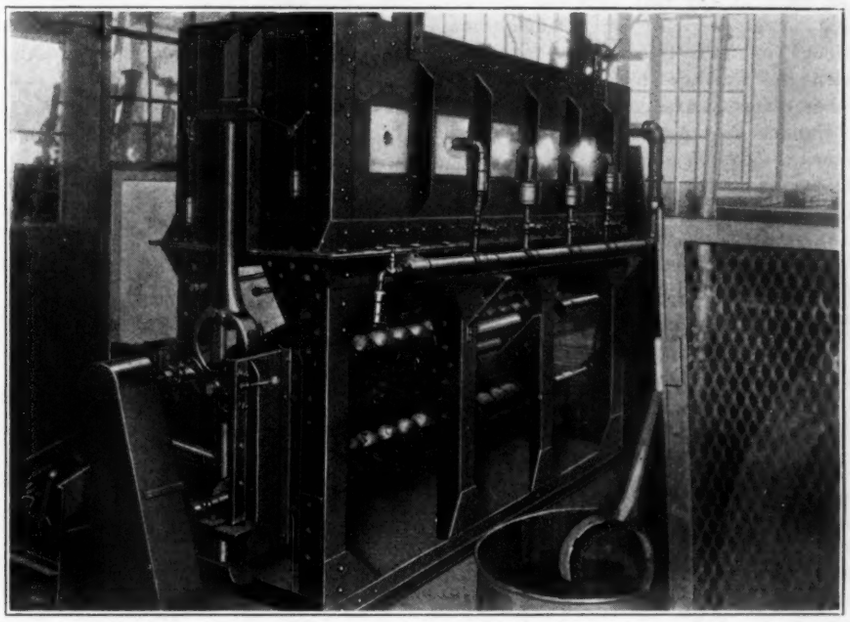
"Our present coal production should supply roughly twice our present heat and power demands," it was declared. "To the bituminous coal industry, in its present lack of organization this prospect of a stationary market presents a gloomy picture. The situation is one in which cut-throat competition will not only destroy profits but also throw an impossible burden on the miners, demoralize our coal-consuming industries and waste recklessly that natural resource upon which the continuance of our prosperity is basically dependent.

"The crisis of one which imperatively calls for co-operation among the producers of coal themselves and between them and the coal consumers, the miners and the public as represented by the government, all to the end that integrated production may be wisely adjusted to demand and surplus man-power turned to other industries.

"The producers of bituminous coal must base their hopes of an expanding market upon their efforts to develop, through research, new uses for their product. They have, as yet, little of such effort to their credit. They have left to others those investigations which have raised coal to the rank of a chemical raw material with inherent possibilities of extraordinary range and promise."

Delegates to this conference made an inspection trip to the by-product coke oven plant of the Carnegie Steel Co. at Clairton, Pa., on Saturday afternoon.

Phases of import trade and factors making an importance of Genoa in Italian import trade in scrap are discussed in a recent report by American vice consul Julian C. Door, Genoa.



No. 286—Automatic continuous vertical forging furnace

Cast Pipe Wins Dallas Controversy

Controversy as to whether steel or cast iron pipe shall be used in the water supply system of Dallas, Tex., finally has been eliminated by the city commission awarding the contract to the United States Cast Iron Pipe & Foundry Co. for a "turnkey" job at its bid of $1,264,000. It was stated that the Uvalde Construction Co., which was originally awarded the contract but which was vetoed by Mayor R. E. Burt, will be given a subcontract by the United States company.

The Ulrickson advisory committee on supervision of expenditures of the city advised that the city accept the joint bid of the Roebeck-Humphries Co. and the United States company, which combination bid is about $54,000 less than the "turnkey" bid by the latter company bidding by itself. This was likewise the recommendation of Fuller & McClintock, consultant engineers retained by the city.

City Attorney J. J. Collins advised that both of these bids, as well as all others received Aug. 10, should be thrown out and new ones advertised for.

Soft Coal Stocks Down Slightly Oct. 1

Commercial bituminous coal stocks, largely for industrial purposes, were 41,100,000 tons on Oct. 1, according to a survey just completed by the United States bureau of mines, department of commerce. In comparison with the amount reported on July 1, the date of the last previous survey, this is a decrease of 600,000 tons. Stocks on Oct 1 compare favorably with the average for this season in other recent years.

Exports in the third quarter of 1928 average 399,000 tons a week, against 270,000 tons in the previous quarter and 351,000 in the third quarter of last year. The weekly rate of home consumption averaged 8,246,000 tons, slightly less than in the corresponding period a year ago.

Coke Production Drops

October production of by-product coke was 4,219,262 net tons and of beehive coke 421,000 tons, a total of 4,640,262 tons, compared with 3,958,682 tons of by-product and 312,000 tons of beehive coke in September, and 3,720,262 tons of by-product and 419,000 tons of beehive coke in October, 1927, states the federal bureau of mines. Stocks of by-product coke as of Oct. 1, 1928, totaled 959,000 tons, against 799,000 tons the year previous.

Standardizing Plumbing

Standardization of plumbing equipment by a sectional committee of technical experts is under way under auspices of the American Standard association, New York. William C. Groeniger, of the American Society of Sanitary Engineering, is chairman of this committee, which includes four subcommittees organized under the division of simplified practice of the department of commerce.

To Report on Progress

Magnus W. Alexander, president, National Industrial Conference board, New York, has arranged for a group of foreign authorities on economic conditions in their countries to make a periodical report to the American business public on world economic progress. The first volume of the contemplated series outlines economic progress in 17 foreign countries of Europe, North and South America and Asia and contains a comparison with conditions in the United States.

Buy Talladega Furnace

Watt T. Brown, Birmingham, Ala., and C. W. Ashcraft, Florence, Ala., have purchased the Talladega Furnace Properties Inc., Japanese-owned for years. Twenty thousand acres in Talladega, St. Clair and Etowah counties were included with a small blast furnace which has not been in operation for many years. Japanese interests bought the plant and coal and ore lands during the World war. Announcements as to plans of the new purchasers will be made later.

Makes Coated Castings

Steel castings with a coating of ferrochrome now are being manufactured by the Bethlehem Steel Co., Bethlehem, Pa. Either carbon or alloy steel is used as the base metal. The coating is an integral part of the castings, covering only those surfaces which require heat resistance, acid resistance or wearing qualities. The stainless coating is hard and tough and cannot be chipped or pounded off or separated by mechanical means.

St. Lawrence Marine Dock Co., Ogdensburg, N. Y., will shortly begin construction of a steel steamer of Welland canal size.

Wage Earners' Incomes Highest Since 1920

Industrial wage earner's incomes this fall reached their highest level since 1920, a year of inflation, and employment in manufacturing was at the highest point since April, 1927, according to monthly reports made to the National Industrial Conference board, New York, by approximately 1500 manufacturing establishments employing on the average 800,000 workers.

The outstanding phenomenon in the labor situation, however, according to the board's analysis, is the marked stability of wage rates and earnings, which since 1923 have fluctuated less than 5 per cent and during the current year have shown a slightly upward trend.

Employment in September was more than 6 per cent higher than at the low point in November, 1927, and 4 per cent higher than in September, 1927. The total number of hours worked by employes in September was 10.8 per cent greater than that in the low month of November, 1927, and 6.2 per cent greater than September, 1927.

Weekly and hourly earnings per worker during September increased in 18 different industries. In seven of these, including iron and steel, average weekly earnings per worker increased by $1 or more over the previous month.

Will Construct Plant for Carbonizing Coal

Ground will be broken in January at the Coatesville, Pa., division of the Lukens Steel Co. for a low temperature coal carbonization plant, the first to be identified with the steel industry. The plant will be owned and operated by the International Coal Carbonization Co., New York. Approximately 1,750,000 cubic feet of gas will be produced daily for heat treating steel at the Lukens plant. The initial installation will include six retorts capable of carbonizing 500 tons of high-volatile bituminous coal a day. Coke yield available for domestic use will average 300 to 325 tons daily.

Plan Steelworks

South Africa's new state owned steel plant will have an initial production of 150,000 tons annually, according to reports to the department of commerce from Johannesburg, South Africa. At present South Africa imports about 300,000 tons annually. The capital of the state owned plant will be £3,500,000.

Editorials

Steel Stocks Up In Rising Market

IN THE great stock market activity since the presidential election the shares of leading iron and steel companies have not been neglected. Their movements have not partaken of the spectacular character of many other more volatile groups but, for example, from the year's low prices to the quotations of last Friday the combined value of eight leading steel stocks had seen an enhancement of $440,000,000, or 34 per cent.

In bidding up shares of iron and steel companies the stock market is taking into account the expansion of the earning power of the industry. Reports of profits for the first three quarters reflected the great improvement made by most companies since 1927. The range of increases in earnings varied greatly; some companies showed gains as high as 200 per cent in the third quarter compared with the third quarter of 1927.

Betterment in the earning position of the industry has resulted from large volume and the check in the prolonged decline of prices. Low profits and depressed prices of the last few years have spurred the trade to make great advances in increased efficiency. It seems more than probable that with prospects for a fair volume of business and for a stable or somewhat higher price level, a prosperous era for the iron and steel companies is at hand.

Wall Street naturally has not overlooked this situation. On the whole, however, steel company securities are appealing less to persons looking for violent speculative advances than to those who believe that the industry has turned the corner and the better level of earnings should be mirrored in share quotations.

Quality Supreme in Air Steels

THOSE who are becoming air-minded, partially through the numerous articles which IRON TRADE REVIEW has published recently relating to the necessities and opportunities of the airplane industry, should receive further stimulus from the report of the aeronautics branch of the department of commerce for the year ended June 30.

In this period nearly 2000 aircraft valued at $14,250,000 were constructed, compared with approximately 1200 aircraft valued at $8,870,000 the year preceding. Exports of aircraft and parts totaled $2,000,000. This was an increase of 65 per cent in number and 60 per cent in value, for production, and a gain of 85 per cent in exports.

Only recently it was noted that Packard, Ford, Chevrolet, Gardner, Velie and Yellow Truck, to cite the more important ones, are producing or developing aircraft as well as automobile engines. Presumably these makers will look for their air steel requirements to their sources of supply for land material. Those steel salesmen who become air-minded will have an advantage. More important, with the aircraft industry so young and its service requirements so severe, quality rather than price should be the keystone of sales policies.

Prescribing For a Sick Industry

SCIENTISTS, executives and coal producers from various sections of the world in attendance at the second International Conference on Bituminous Coal held last week at the Carnegie Institute of Technology, Pittsburgh, found time in the midst of their technical discussions to diagnose and prescribe for the ills of America's sick industry. The ailment has been apparent for some time; bituminous coal consumption has failed to keep pace with production. The rising trend in consumption of oil, by-product coke and gas, the increased use of waterpower, the changeover from individual power plants to central station supply, and the improved efficiency in burning of soft coal—all have combined to restrict the upturn in America's bituminous requirements.

The evolution that has taken place in recent years in the market for combustible materials has favored the use of pure and concentrated hydrocarbons, such as are found in oil and gas, it was pointed out by Dr. Franz zurNedden, Berlin, in suggesting a means for correcting the overproduction evil in the American coal industry. The coal producer, he maintained, must turn to by-product industries and with the aid of science market his excess output in other forms.

Europe has followed this practice through necessity of substituting for its lack of natural oil supplies and water power. In the past 15 years Germany has decreased its sales of coal in its original state from 52 per cent of the total output to 40 per cent. The balance is changed into briquettes, powdered fuel, coke, gas, electric power or oil.

It may be argued that this country is well provided with oil and water power, yet the arti-

ficial gas industry flourishes despite the competition from natural gas, and steam power plants are in the majority, even though America leads in potential water power capacity. The coal industry must seek a way out of its present depression; developments in oil, gas and coal use have altered conditions to such an extent that the situation will not right itself. The problem is not a simple one, but in joining hands with the scientist the coal producer can ally himself with a valuable aid in his attempts to bring about the stability which this important industry so vitally needs.

Southern Iron Aids Cast Pipe

IN THE advance of pig iron prices, varying from $1.50 in Cleveland, Buffalo and the Valleys, to $2.50 at Chicago, the modest rise of 25 cents per ton at Birmingham, Ala., seems a decided contrast. But the rise in Southern iron seems only deferred, more of a time lag than otherwise. Producers are applying the present quotation of $16.50 on current business and first quarter contracts, with the warning of another advance.

Apparently the secret of this small advance at Birmingham, with the promise of a higher price soon is found in the situation in cast iron pipe. This is the greatest tonnage outlet for southern iron, freight rates to consuming points in the north now being almost prohibitive, at about $6 per ton. Pipemakers in the South have had a lean year in the lessened activity of subdividers of real estate, which usually calls for much pipe. Foreign pipe has cut into sales along the coasts and the result has been smaller sales to this class of users.

The winter season usually is devoted by cast pipe makers to accumulating stock to be shipped in spring and summer, when excavating can be done, and when the heat limits production.

Southern pig iron producers apparently are looking to the interest of their largest customer, the pipe industry, as a matter of self interest, perhaps, as well as a measure for the general good.

Research Is Benefiting All

WHEN Herbert Hoover was secretary of commerce and striving to elevate the quality of service rendered not only by his department of commerce but also by all other economic and technical agencies of the federal government he frequently stressed the point that the federal government in its researches should attack problems which, while promising widespread application and benefit, were of such a nature that private interests do not pursue them.

In the federal bureau of mines report for the year ended last June 30 this thought is expressed in another manner: "The field of metallurgy presents one of the greatest opportunities for the research specialist to contribute to world progress by devising methods for the recovery of minerals essential to the comfort and welfare of mankind."

Considering the work of the bureau only along the line of ferrous metallurgy in the past fiscal year, the researches in progress indicate ultimate refinement of blast furnace and steelworks practice which are certain to be reflected in lower costs or an improved product to the consumer.

Blast furnace investigations include resistance of furnace stock to the flow of gas, factors governing size distribution of raw materials, sintering and sizing, desulphurization, fundamental reactions in the furnace, and utilization of manganiferous iron ores. Under physical chemistry of steelmaking the bureau has been considering the solubility of iron oxide in iron, formation and identification of nonmetallic inclusions in steel, elimination of nonmetallic inclusions in the basic open-hearth furnace, viscosity of open-hearth slags, methods of determining nonmetallic inclusions in steel, equilibrium between iron, manganese and sulphur, unreduced oxides in iron and case carburizing of steel.

Unobtrusively the bureau of mines is making its contribution to the more comfortable life of this era.

Ethics Improve Merchandising

FOR some of its past activities, especially in the days immediately following the war, the federal trade commission received deserved reproof, but the present reconstituted commission merits only the commendation of industry for the trade practice conferences it has been undertaking.

In industry, as in the business and social interchange of every-day life, the great majority of participants does the ethical thing. Usually, however, there is a small minority which is consistently in the twilight zone, falling easily into doubtful practice or even downright unethical conduct when detection appears improbable. Five per cent of questionable conduct in almost any industry can go far toward upsetting it.

To bring an entire industry around a table to discuss a code of practice, to accept the dictum that selling below cost is a method of unfair competition, that selling without specifications opens the door to a multitude of uncertainties, that selling on a quality basis differentiates selling from order-taking—all this is a really fine thing. It is one of the few approved excursions of government into business. It is a distinct aid to the improvement in methods of merchandising which industry needs so greatly.

IRON TRADE REVIEW

Volume 83, Number 22 — Published Every Thursday

E. L. SHANER, Editor. — *J. D. PEASE, Advertising Director.* — *F. F. LIGHT, Circulation Manager.*

Building All-Steel Automobile Bodies. Page 1367.

BEWARE of the "prosperity complex," says Virgil Jordan, chief economist of the National Industrial Conference board, in the article beginning on page 1378. He warns against an over-confident state of mind, which may be induced by "reckless inflation of language." He is viewing 1928 as "the biggest year in our history from the point of view of industrial and trade activity." It has brought us face to face with certain new and fundamental problems of economic control and adjustment. The business public "must be jarred out of a complacent slumber of self-satisfaction," he believes.

The Readers' Page

CONTENTS

For November 29, 1928

SPECIAL ARTICLES

All-Steel Body Affords Rigid Construction—By Kent Lighty..... 1367
World Industrialization to Broaden Industrial Machinery Demand—By W. H. Rastall..... 1370
Unloader Handles Sheets in 10-Ton Bundles..... 1372
Considers Uncle Sam Good Customer of Steel Fabricators—By J. Edward Cassidy..... 1373
Metallography Simplified for Practical Use in Shop—Chap. VIII—By E. Preuss..... 1375
Prosperity, a "Complex", Endangered if Consumption Is Not Mastered—By Virgil Jordan..... 1378
National Founders Discuss Problems of Marketing and Profits..... 1381
Mirrors of Motordom..... 1383
Little Business Legislation for Short Session of Congress—By Lynne M. Lamm..... 1384
Must Find New Outlets for Coal..... 1385
Digest of Machine Tools..... 1386
Editorials..... 1389

BUSINESS TREND

Steel Industry's Outlook Favorable.... By John W. Hill..... 1392
Steel Price Index.. 1392
Steel Castings..... 1393
Structural Awards. 1393
Coke Production.. 1394
Building Cost Index..... 1394
Car Loadings..... 1395
Commercial Failures..... 1395

MARKET REPORTS

Review of Markets..... 1396
Iron, Steel Prices..... 1396, 1397, 1398, 1401, 1411, 1428
Pig Iron..... 1399
Coke..... 1400
Ferroalloys..... 1400
Iron and Steel Scrap 1401
Semifinished..... 1402
Bars..... 1403
Plates..... 1403
Pipe..... 1404
Nuts, Bolts, Rivets 1405
Sheets..... 1405
Tin Plate..... 1405
Structural Shapes. 1406
Reinforcing Bars.. 1407
Railroad Equipment 1408
Cold Finished Steel 1409
Wire and Nails..... 1409
Strip Steel..... 1409
Nonferrous Metals 1410
Coke By-Products. 1410
Warehouse Markets 1411
Pacific Coast Markets..... 1412
Foreign Markets... 1417
Machinery Markets 1421
Crane Inquiry and Awards..... 1421

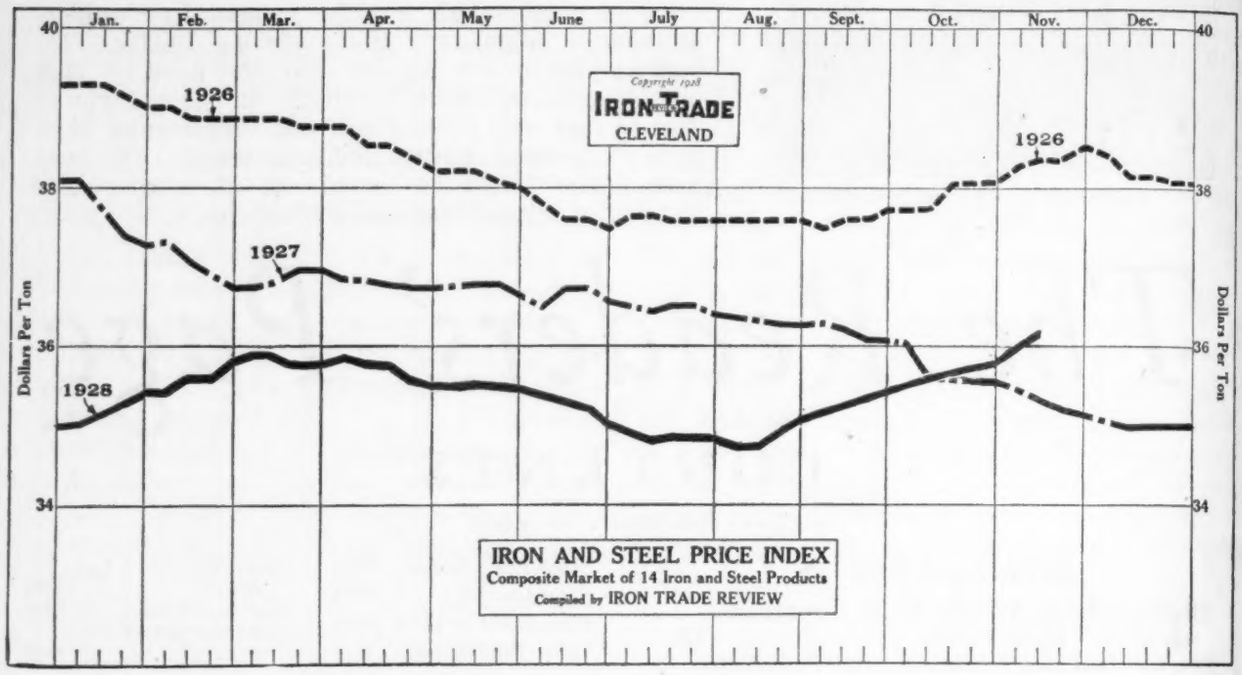
GENERAL NEWS

Industrial Men in the Day's News—Col. T. S. Hammond..... 1414
Export, Import Trade Good..... 1419
Men of the Industry 1415
Obituary..... 1416
Here and There in Industry..... 1422
Construction and Enterprise..... 1423
New Incorporations 1426
Trade Publications 1426

IRON TRADE REVIEW is published by the Penton Publishing Co., Cleveland, O. Member, Audit Bureau of Circulation; Associated Business Papers Inc.; and National Publishers Association. Branch offices: 1147 People's Gas Bldg., Chicago; 209 Edwards Bldg., Cincinnati; 2208-2206 No. 220 Broadway, New York; 2148-49 Oliver Bldg., Pittsburgh; 24 California street, San Francisco; 1653 Pennsylvania avenue, Washington; and Boston. Foreign offices: Prince's Chambers, Birmingham, Eng.; Caxton House, Westminster S. W. 1, London; 9 Rue de Londres, Paris, France; Wilhelmstrasse 114, Berlin, S. W. 48, Germany; Cable address: *PENTON*, Cleveland; *ITROTRAPEN*, London. Terms: Subscription in United States, Cuba and Mexico, $6 per year; in Canada, $8.50 per year and in Great Britain and other countries £2:0:0 per year. *Entered at the Postoffice at Cleveland as Second Class Matter.* *Copyright 1928 by the Penton Publishing Co.*

The A. B. P. is a nonprofit organization whose members have pledged themselves to a working code of practice in which the interests of the men of American industry, trade and professions are placed first—a code demanding unbiased editorial pages, classified and verified paid subscribers and honest advertising of dependable products

The Business Trend



Steel Industry Outlook Favorable

By JOHN W. HILL, Financial Editor

THE iron and steel industry is approaching a new year in what appears to be the soundest basic position of recent years. The most convincing indications of this are found in the continued high operations and shipments for this season, and the firm condition of prices. In the latter, the industry sees its economic salvation.

LOW prices and enfeebled earnings have marked the steel industry for some years. Notwithstanding the fact that production has been large, quotations have been almost below the line of subsistence. But this year there came a turn in the situation. Prices are governed, of course, by the law of supply and demand, and the country's requirements for steel have expanded sufficiently to give a better balance between production and demand.

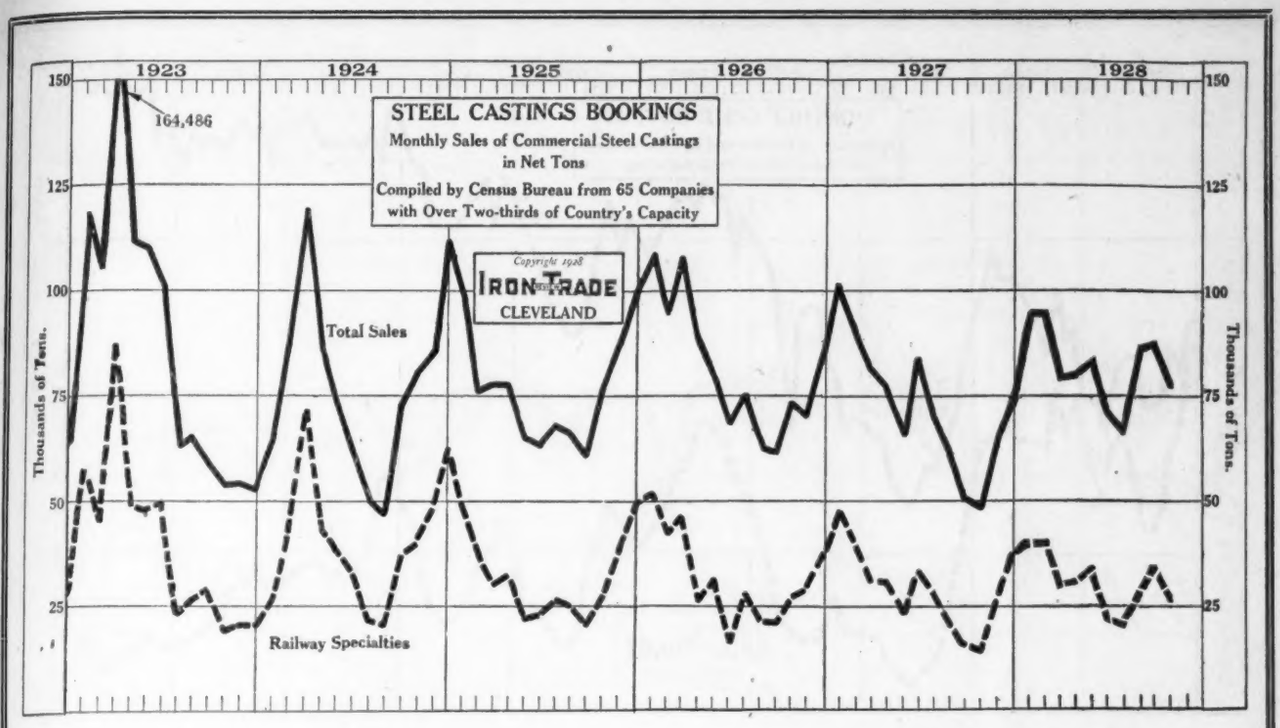
IRON TRADE REVIEW'S composite market average throughout 1927 was on a declining plane, and at a level well below that of 1926. Early in 1928, as shown by the above chart, the price level showed some improvement, but in the spring, weakness again developed. Fresh low levels were touched in the summer, with iron and steel prices genuinely depressed.

IN AUGUST the condition began to improve. There was witnessed the remarkable phenomenon of continued high scale operations of mills and a minimum of summer slump. Steady improvement developed in prices of various products. At first this improvement was regarded as another false start, but subsequent events have indicated that buyers have accepted price advances.

SINCE the bottom of the depression in August the price level has moved up nearly 4 per cent. Prices actually have crossed above those prevailing last year and now are over 2 per cent higher. Not only have finished steel prices advanced, but pig iron is in demand and better levels. The result is the iron and steel industry has the prospect of winding up 1928 with perhaps the best peacetime earnings in its history.

IT IS this consideration which is causing the stock market to disclose increasing interest in steel company securities. This is likely to continue for some time, although further seasonal contraction in activities may be expected to appear over the next few weeks. On the whole, the outlook for the iron and steel industry is good.

The Business Trend

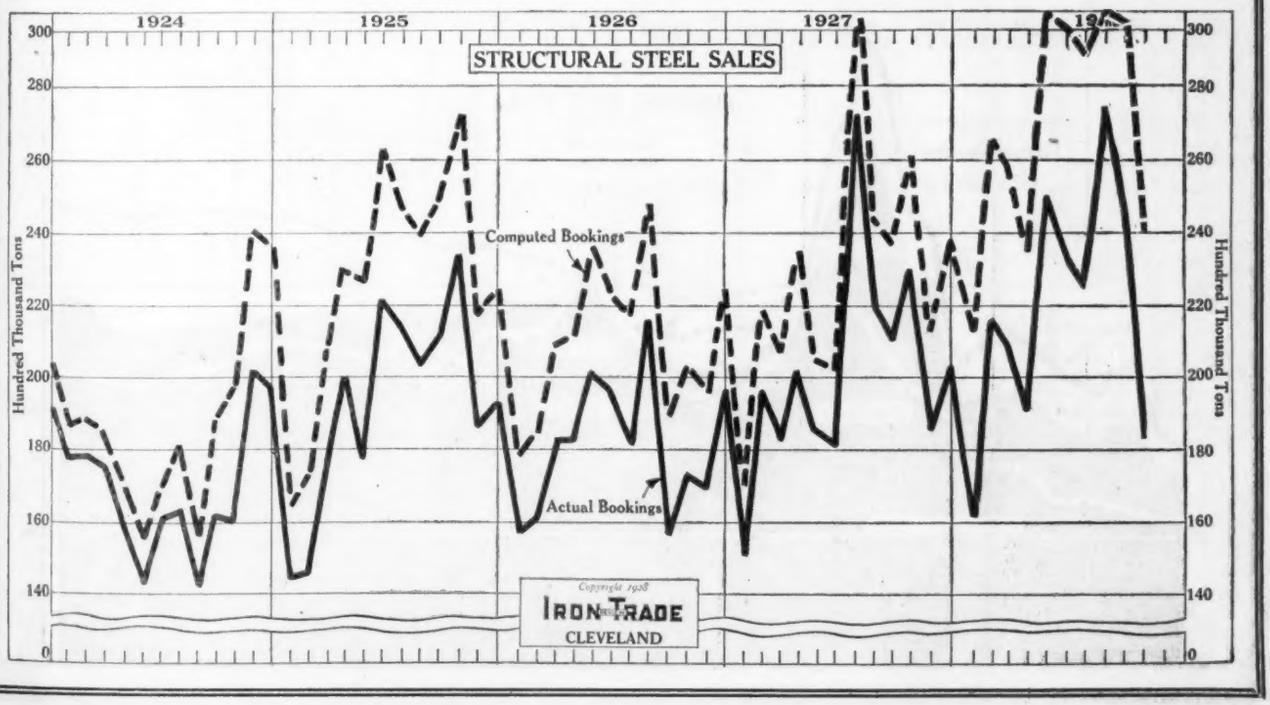


Steel Castings

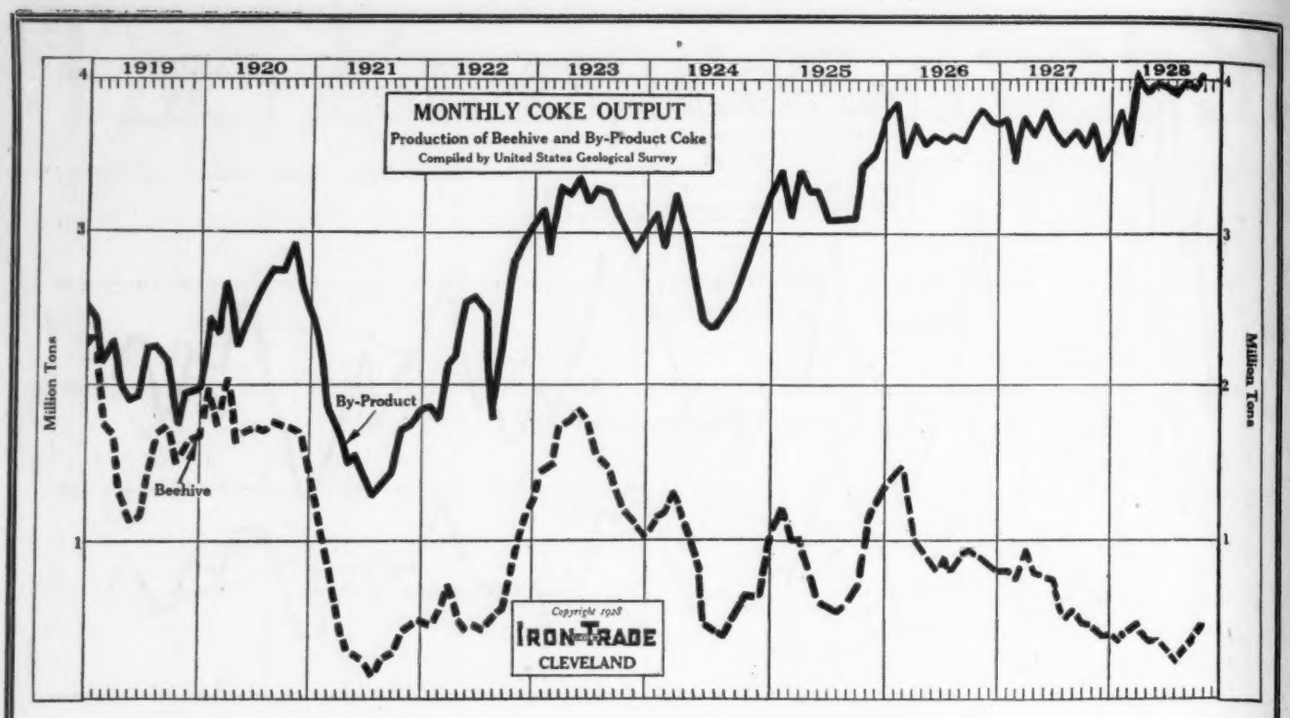
NEW orders for steel castings in October as reported to the department of commerce by leading manufacturers were 54 per cent of shop capacity against 57 per cent in September and 36 per cent one year ago. The total bookings amounted to 77,783 tons compared with 51,748 tons in October, 1927. Orders for railroad specialties amounted to 26,529 tons in October, compared with 35,234 tons in September and 16,625 tons in October, 1927. Steel castings output in October was 60 per cent of capacity.

Structural Awards

SOME seasonal falling off in awards for fabricated structural steel appeared in October. New orders for the month as reported to the department of commerce were 64 per cent of capacity against 85 per cent one month before. The computed tonnage of orders for the month was 240,000 tons compared with 318,750 tons one month before and 288,750 tons one year ago. Shipments of structural steel in October were 330,000 tons compared with 277,000 one month ago and 251,000 in October, 1927.



The Business Trend

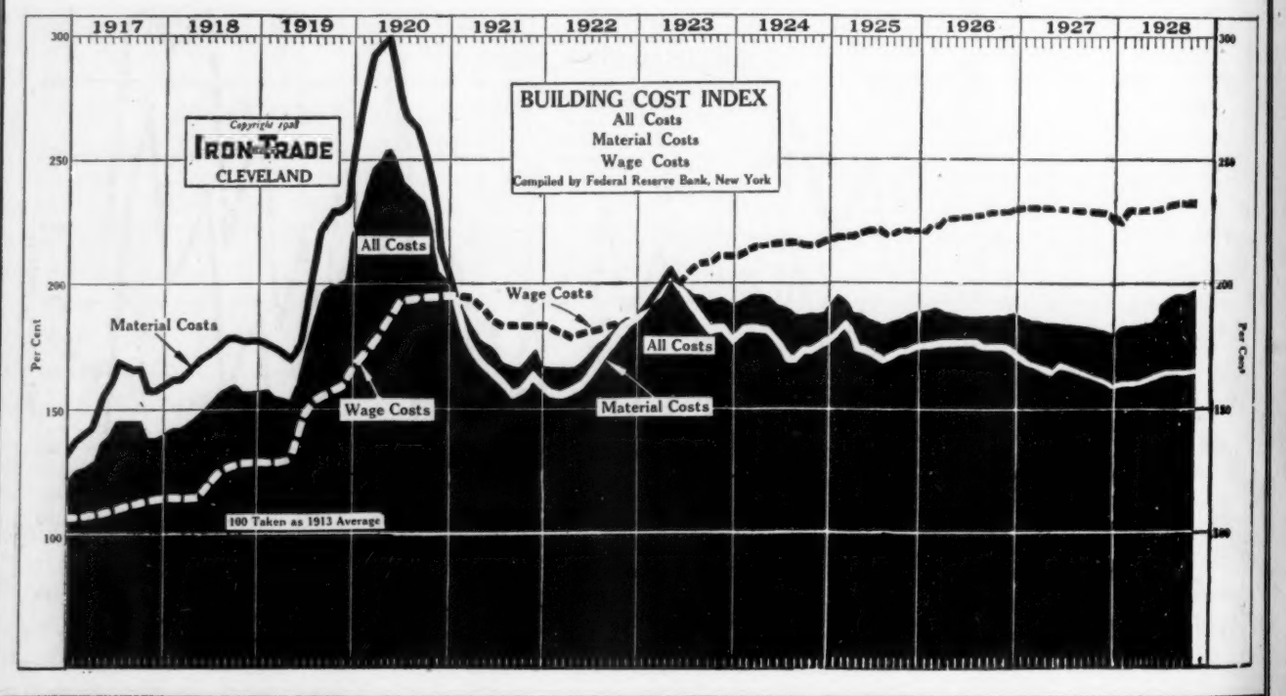


Coke Production

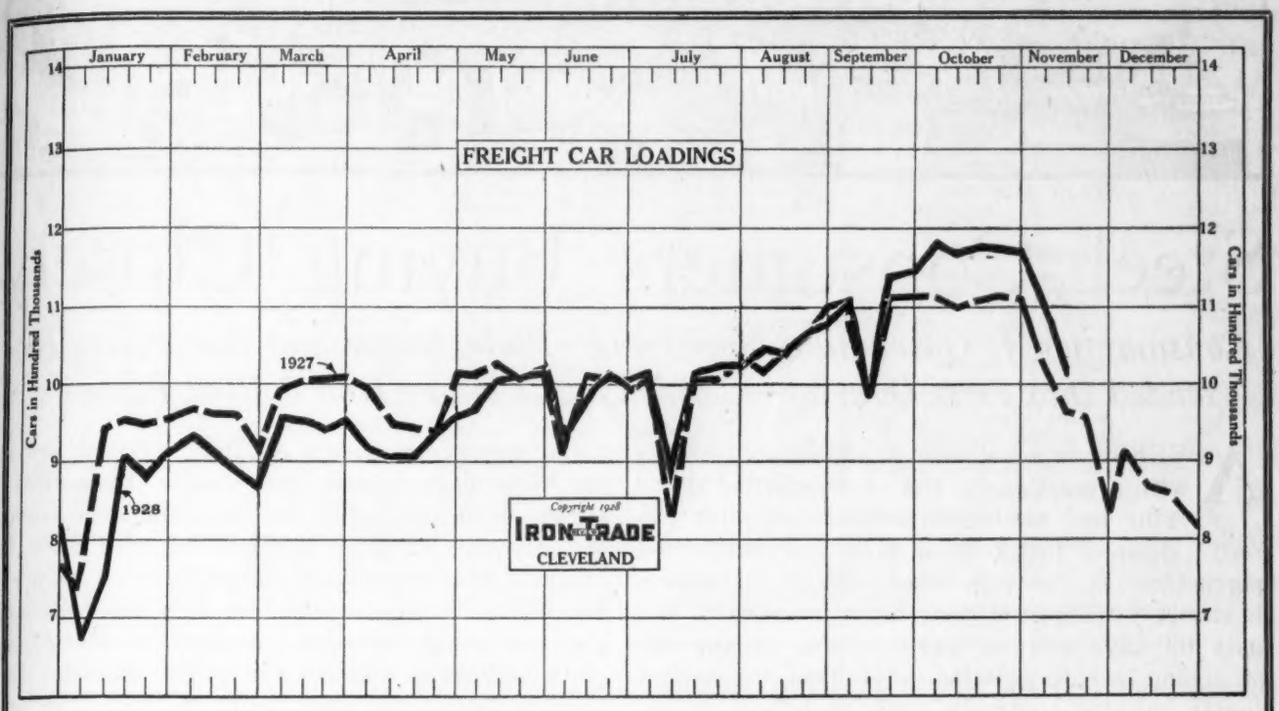
OCTOBER brought a new high record for the production of by-product coke. The output of beehive coke was the largest of any month since March, 1926. The production of by-product coke for the month was 4,219,000 tons compared with 3,958,600 tons in September and 3,720,262 tons in October, 1927. The daily average rate of output of by-product coke was 136,105 tons compared with 120,008 tons one year before. Beehive coke production in October was 421,000 tons.

Building Cost Index

ENLARGED demand for building materials caused prices to advance. The index of building material costs, computed by the Federal Reserve Bank of New York, stood at 164 in October compared with 163 in September and a low point of 157 during the early months of the year. Total costs of building stand at 192 compared with 191 one month before and 187 one year ago. Wages of building labor continue at their peak for all time at an index of 233 compared with 230 one year ago.



The Business Trend

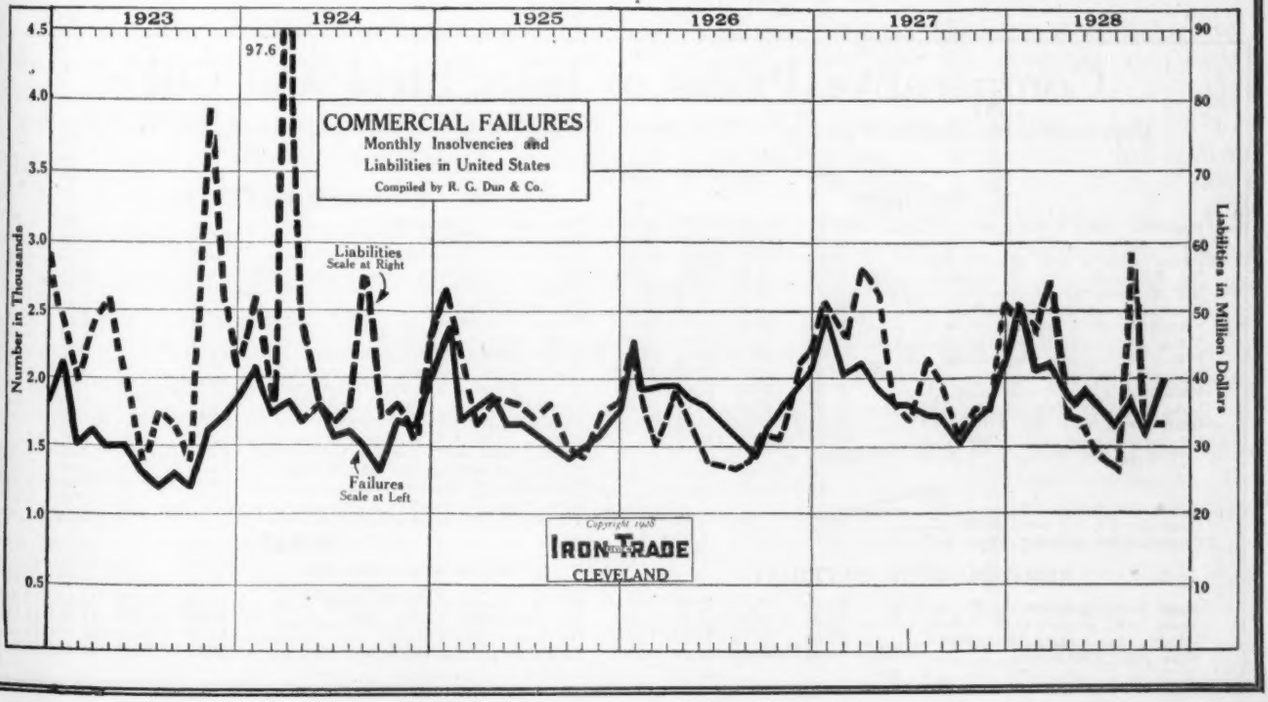


Freight Car Loadings

FREIGHT movements have continued to subside in accordance with the usual seasonal movement. Loadings of revenue freight for the week which ended Nov. 10 totaled 1,053,295 cars. This was a decrease of 50,047 cars under the preceding week this year. Decreases were reported in the total loadings of all commodities except that of ore, which showed a small increase. The total for the week showed an increase of 78,161 cars above the corresponding week of 1927.

Commercial Failures

IN KEEPING with the normal seasonal trend, the number of commercial failures in the United States increased during October. The total was 2023 compared with 1635 in September and 1787 in October, 1927. Liabilities involved in the defaults reported by R. G. Dun & Co. also increased slightly, the total being $34,990,474 compared with $33,956,686 in September and $36,235,872 in October, 1927. The number of defaults was 13 per cent greater than those of one year ago.



Steel Consumers Buying Closely

Consumption Is Outrunning Specifying—Plate, Shape and Bar Prices Extended into First Quarter—Car Buying Heavy—Iron Selling Pauses

ADVERSE seasonal market influences coincide with a reaction to the unprecedented specifying and production of October, with the result demand for finished steel has moderated perceptibly in the past week. Many consumers have not yet digested their heavy receipts of the past 60 days and all have an eye to the approaching inventory period. Specifications against fourth quarter contracts tend, therefore, to become delinquent.

Tonnage Users Have Good Prospects

But these shadows do not dim the market picture. Consumption as a whole, sustained by five consecutive monthly steel production records, is probably larger than in any preceding November. Year-end activity in railroad equipment and track material is fully up to a five-year average. Structural projects have rarely been so large or so numerous at this season. Shipyard purchases of steel will shortly mirror the quickening of the American merchant marine. The lag in automotive production this year is comparatively mild.

This reaction, however, appears to have tempered producers' views on first quarter prices. On steel bars, plates and shapes 1.90c, Pittsburgh, is being quoted for first quarter to users of 1000 tons or more per quarter, and 2.00c to others. This is virtually a continuation of present levels. Current prices on cold finished bars also are being extended. Makers of sheets, tin plate and strip, demand for which exceeds the heavier lines, are now trying to establish advances. While steel price sentiment is suffering some deflation, none of the recently-gained ground has been surrendered.

Pig Iron Subsides as Melters Wait

Pig iron likewise has lost some of its turbulence, but its underlying strength is unmistakable. Shipments are substantially as heavy as in October, and order books account for a decisive portion of first quarter capacity, but there is a growing tendency by those who still have tonnage to place to wait out the market. A sale of basic iron in the Mahoning valley at 50 cents under the market casts some doubt on the price structure and indicates some free iron from a steelworks

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Nov. 28, 1928	Oct., 1928	Aug., 1928	Nov., 1927
PIG IRON				
Bessemer, del., Pittsburgh	$20.01	19.11	18.76	19.76
Basic, valley	17.50	16.85	16.00	16.00
Basic, eastern, del. eastern Pa.	19.75	19.75	19.00	19.50
No. 2 foundry, del., Pittsburgh	19.76	18.76	18.26	19.26
No. 2 foundry, Chicago	20.00	18.80	17.60	18.50
*Southern No. 2, Birmingham	16.50	16.70	15.65	16.50
*Southern Ohio, No. 2 Ironton	18.50	18.60	19.00	19.00
**No. 2X, Virginia furnace	20.50	20.50	20.00	21.25
**No. 2X, eastern, del. Phila.	21.76	21.26	20.76	20.51
Malleable valley	18.00	17.35	17.00	17.50
Malleable, Chicago	20.00	18.80	17.60	18.50
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	27.04
Gray forge, val., del. Pittsburgh	18.76	18.26	18.01	18.76
Ferromanganese, del. Pittsburgh	109.79	109.79	109.79	94.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	2.75	2.80	2.75	2.80
Connellsville, foundry, ovens	3.75	3.75	3.75	3.75
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	34.00	33.00	33.00	34.00
Sheet bars, open-hearth, Pittsburgh	34.00	33.00	32.20	34.00
Billets, open-hearth, Pittsburgh	33.00	32.75	32.00	33.00
Wire rods, Pittsburgh	42.00	42.00	42.00	41.00

	Nov. 28, 1928	Oct., 1928	Aug., 1928	Nov. 1927
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.90	1.95	1.85	1.75
Steel bars, Chicago	2.00	2.00	2.00	1.85
Steel bars, Philadelphia	2.27	2.27	2.17	2.07
Iron bars, Chicago	2.10	2.00	2.00	1.85
Shapes, Pittsburgh	1.90	1.95	1.85	1.75
Shapes, Philadelphia	2.06	2.08	2.01	2.07
Shapes, Chicago	2.00	2.00	2.00	1.85
Tank plates, Pittsburgh	1.90	1.95	1.85	1.75
Tank plates, Philadelphia	2.15	2.15	2.10	2.07
Tank plates, Chicago	2.00	2.00	2.00	1.85
Sheets, black, No. 24, Pittsburgh	2.85	2.70	2.65	2.80
Sheets, blue anl., No. 10, Pittsburgh	2.10	2.00	2.00	2.10
Sheets gal., No. 24, Pittsburgh	3.60	3.50	3.50	3.70
Sheets, black, No. 24, Chicago	3.00	2.90	2.80	3.00
Sheets, blue anl., No. 10, Chicago	2.25	2.15	2.15	2.30
Sheets, galvanized, No. 24, Chicago	3.75	3.65	3.65	3.85
Plain wire, Pittsburgh	2.40	2.40	2.40	2.40
Wire nails, Pittsburgh	2.55	2.55	2.55	2.50
Tin plate, per base box, Pittsburgh	5.35	5.25	5.25	5.30
SCRAP				
Heavy melting steel, Pittsburgh	17.00	17.35	15.00	14.20
Heavy melting steel, eastern Pa.	16.00	16.00	12.75	14.00
Heavy melting steel, Chicago	14.50	13.75	12.65	11.50
No. 1 wrought, eastern Pa.	15.50	15.50	14.80	15.75
No. 1 wrought, Chicago	14.25	13.50	12.40	11.25
Rails for rolling, Chivago	16.50	16.40	15.00	13.95

Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

STEEL PLATES

Pittsburgh	1.90c to 2.00c
Philadelphia, del.	2.15c to 2.25c
New York, del.	2.225c to 2.325c
Boston, del.	2.265c to 2.415c
Chicago	2.00c to 2.10c
Cleveland, delivered	2.09c to 2.19c
Lackawanna, N. Y.	2.00c
Birmingham	2.15c
Pacific Coast, c.i.f.	2.20c to 2.30c

STRUCTURAL SHAPES

Pittsburgh	1.90c to 2.00c
Philadelphia, del.	2.00c to 2.11c
New York, del.	2.19c to 2.24c
Boston, del.	2.265c to 2.415c
Chicago	2.00c to 2.10c
Cleveland, delivered	2.09c to 2.19c
Lackawanna, N. Y.	2.05c
Birmingham	2.15c
Pacific Coast, c.i.f.	2.35c

BARS

SOFT STEEL

Pittsburgh	1.90c to 2.00c
Chicago	2.00c to 2.10c
Birmingham	2.15c
Lackawanna, N. Y.	2.05c to 2.10c
Pacific Coast, c.i.f.	2.35c
Cleveland	1.90c to 2.00c
Philadelphia, del.	2.22c to 2.32c
New York, delivered	2.24c to 2.34c
Boston, delivered	2.265c to 2.415c
Pittsburgh, cold finishing	2.05c
Pittsburgh, forging quality	2.15c

RAIL STEEL

Chicago Heights	1.95c
Eastern mills	1.85c

IRON

Chicago	2.00c to 2.10c
New York, delivered	2.19c to 2.24c
Philadelphia, delivered	2.17c to 2.22c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh billet, cut lengths	2.25c
Stock lengths from mill	2.00c
Chicago, billet	2.15c to 2.30c
Chicago, rail steel	2.00c to 2.60c
Chicago, rail steel, road and bridge work	1.85c to 1.95c
Philadelphia, cut lengths	2.57c

COLD FINISHED STEEL

Cold finished steel bars, drawn or rolled, Pitts., Chi., c.l.	2.20c
Shafting (turned, polished) Pittsburgh	2.20c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.55c to 3.00c
Cold finished steel bars, Cleve.	2.25c

TIN AND TERNE PLATE

Prices per 100-pound box Pittsburgh

*Tin plate, coke base	$5.35

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24.. 4.00c to 4.10c

*Price subject to quantity differentials.

SHEETS

SHEET MILL BLACK

No. 24, Pittsburgh base	2.75c to 2.85c
No. 24, Philadelphia, delivered	3.07c to 3.17c
No. 24, Gary, Indiana Harbor	2.85c to 2.95c
No. 24, Chicago, delivered	3.00c to 3.10c
No. 24, Birmingham, base	3.00c

TIN MILL BLACK

No. 28, Pittsburgh, base	3.00c
No. 28, Gary, base	2.95c to 3.05c

GALVANIZED

No. 24, Pittsburgh, base	3.50c to 3.60c
No. 24, Philadelphia, delivered	3.82c to 3.92c
No. 24, Gary, Indiana Harbor	3.70c
No. 34, Chicago, delivered	3.75c
No. 24, Birmingham, base	3.75c

BLUE ANNEALED

No. 10, Pittsburgh, base*	2.00c to 2.10c
No. 24, Philadelphia, delivered	2.32c to 2.42c
No. 10, Gary, Indiana Harbor	2.20c
No. 10, Chicago, delivered	2.25c
No. 10, Birmingham, base	2.25c

*Plus 0.10 cents for 45 inches or wider.

AUTOMOBILE

No.20, Pittsburgh, base	4.10c

FURNITURE

No. 24, Grade A, Pittsburgh	3.90c to 4.00c
No. 24, Grade B, Pittsburgh	3.75c to 3.85c

(Turn to the following page)

interest. Buffalo is a strong sector with one merchant stack lighted this week and two to resume in December. Sales of 41,000 tons at Cleveland denote automotive activity.

Led by the Wabash railroad with 2000 freight cars, the North Western 400 and the Chicago Great Western 300, the week's car awards exceed 3175 and make November the banner car buying month of the year provided the 8000 placed earlier by the Canadian National and Canadian Pacific are included. The Santa Fe is out for 6000 cars, the Louisville & Nashville has broadened its inquiry to 2500, the Northern Pacific seeks 2000 and five small inquiries total 1500. Over 14,000 cars are pending. About 150 locomotives may be placed by the end of the year.

It is estimated at Chicago that close to half the rails expected to be bought for 1929 delivery has been distributed. Pending inquiry there aggregates nearly 40,000 tons. Including 10,000 tons of tie plates placed at St. Louis by the Missouri Pacific, the week's accessory business exceeded 16,000 tons.

Structural Lettings Numerous and Large

Structural steel awards the past week approximated the seasonally-high total of 70,000 tons, topped by 26,000 tons for the Kill van Kull bridge at New York. An office building at Hartford, Conn., requires 7000 tons, a bridge at Madison, Ind., 5200 tons and a factory and terminal work at Cleveland each 3000 tons. Bridgework has contributed materially to recent brisk structural lettings. The 25,000 tons for completing the Fisher building project at Detroit may be placed early next year.

Beehive furnace coke prices continue soft, with some distress material offered at 15 cents below the market and consumers deferring action on first quarter supplies. Iron and steel scrap continues easy in most districts. First quarter contracting for semifinished also lags, but without a suggestion as to price weakness and with all makers of rerolling billets at Chicago up $1.

Bar Demand at Chicago Eases Off

Some first quarter contracting for sheets at the new $2 advanced prices is reported. Backlogs have melted away but the year-end dip in production promises to be mild. Automotive orders for strip and cold finished steel are seasonally high. Shrinkage in steel bar specifications at Chicago indicates a general letdown in the metalworking industries. Reinforcing bar sellers at Chicago are advancing prices $1. Youngstown and Milwaukee makers have taken a 76,500-ton pipe order.

Steelmaking operations at Youngstown, at 83 per cent, hold better than in most districts. Pittsburgh, Chicago and Buffalo mills average 80 per cent. Steel corporation subsidiaries are at 82 per cent this week, an increase of three points.

Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (Nov. 27, 1928)	$36.13
Last week (Nov. 20, 1928)	36.19
One month ago (October, 1928)	35.93
Three months ago (August, 1928)	34.96
One year ago (November, 1927)	35.35
Ten years ago (November, 1918)	55.67
Fifteen years ago (November, 1913)	26.32

After rising for fifteen consecutive weeks, to the highest point in thirteen months, the IRON TRADE REVIEW composite of fourteen leading iron and steel products has receded 6 cents, to $36.13, due to adjustments in pig iron.

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED
SEE ALSO PRECEDING PAGE

HOOPS, BANDS, STRIPS

Hot strip, to 6-in., Pitts.	1.90c to 2.00c
Hot strip, 6 1/16 to 24-in., Pitts.	1.80c to 1.90c
Hot rolled strip, 12 to 24-inch 16 gage and heavier, coils or cut length, 1.90c to 2.00c plate basis, or 2.00c blue annealed basis.	
Hot strip, bands, under 6-in. Chicago	2.10c to 2.30c
6 to 20 in.	2.00c to 2.10c
Cold rolled strip, hard coils, 16 inches and wider by 0.100-inch and heavier, base Pitts., Cleve. (3 tons and over)	2.85c to 2.95c
Worcester, Mass. (3 tons and over)	3.10c to 3.20c

ALLOY STEEL

Hot Rolled
F.o.b. Mills

Alloy Quality Bar Base is 2.65c to 2.75c

S.A.E. Series Number	Alloy differential	Net, 100 lb. bars
2000	0.25	$3.00
2100	0.55	3.30
2300	1.50	4.25
2500	2.25	5.00
3100	0.55	3.30
3200	1.35	4.10
3300	3.80	6.55
3400	3.20	5.95
4100 0.15-0.25 Mo.	0.50	3.25
4100 0.25-0.40 Mo.	0.70	3.45
4600 0.20-0.30 Mo. 1.25-1.75 Ni.	1.05	3.80
5100 0.60-0.90 Cr.	0.35	3.10
5100 0.80-1.10 Cr.	0.45	3.20
5100 Chrome Spring	0.20	2.95
6100 Bars	1.20	3.95
6100 Spring Steel	0.95	3.70
Chrome Nickel Vanadium	1.50	4.25
Carbon Vanadium	0.95	3.70
9250 (flats)	0.25	3.00
9250 (rounds, squares)	0.50	3.25

TUBING

Boiler

Carload Discounts—Less-carloads 4 points Lower—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	42½
Charcoal iron, 3¼ to 4½-inch	9
Seamless hot rolled 3¼ to 3½-inch	56

Further discounts of six 5 per cents for 21,000 pounds or more on lap welded steel. On charcoal two 10's and one 2½ on 12,000 pounds or more.

COLD DRAWN SEAMLESS

F.o.b. mill in desirable quantities

Random lengths, over 5 feet	55 per cent
Selected lengths, 1 to 18 feet	53 per cent

WIRE PRODUCTS

To Jobbers in Carloads

F.o.b. Cleveland and Pittsburgh base
Dealers 10 cents per 100 pounds extra

Bright plain wire, No. 9 gage	2.40c
Annealed fence wire	2.55c
Galvanized wire, No. 9 gage	3.00c
Barbed wire, painted	2.95c
Barbed wire, galvanized	3.20c
	Per 100 lbs.
Wire nails	$2.55
Galvanized nails, plus differ.	4.55
Polished staples	3.00
Galvanized staples	3.25
Coated nails, 100 lb. kegs, Sept. 1, 1926, extras apply	2.55
Woven wire fencing (retailers) 12½ gage, 26-in. high, 7-in. bars and 12-in stays, per 100 rods, f.o.b. Pitts.	$20.03

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Cleveland-Pittsburgh base on products made there; Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

CUT NAILS, CHAIN, PILING

Cut nails, c.l., f.o.b. mills	2.75c
Cut nails, l.c.l. f.o.b. mills	2.85c
Chain, 1-in., proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.25c

CAST IRON WATER PIPE

Prices per net ton
Class B pipe

Six-inch and over, Birming'm	$37.00 to 38.00
Four-inch, Birmingham	41.00 to 42.00
Four-inch, Chicago	49.20 to 50.20
Six-inch to 24-inch, Chicago	45.20 to 46.20
Four-inch, New York	40.60 to 42.10
Six-inch and over, New York	37.60 to 39.10
Standard fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

IRON AND STEEL PIPE

Base Discounts Pittsburgh and Lorain, O., to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel*	62	50*
1 to 1½-inch butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less, Chicago, del., 2½ points less.

*To large jobbers these discounts are increased on black by 1 point and a supplementary discount of 5 per cent on galvanized by 1½ points with a supplementary 5 per cent.

RAILS, TRACK MATERIAL

Standard bessemer rails, mills	$43.00
Standard open-h'th rails, mill	$43.00
Relaying rails, St. Louis	$24.00 to 31.00
Relay rails, Pitts. 60 to 90 lb.	$22.00 to 27.00
Light rails, 25 to 45, mills	$36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.00c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., steam roads	3.80c
Track bolts, Pitts., stand, jobbers	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	$43.00

BOLTS AND NUTS

Birmingham and Chicago

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

Eagle list	60 to 70 off

MACHINE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

Lag Screws	60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads	60 to 70 off
Tap bolts	60 to 70 off
Blank bolts	60 to 70 off
Stud bolts without nuts	60 to 70 off

Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 20, 10 and 5 with 2½ off in bulk.

Tire bolts	60-5 off

Nuts

Semifinished	60 to 70 off

HEXAGON CAP SCREWS

Milled	80-10-10 off
Upset 1 in. diam. and smaller	85-5 off

SQUARE HEAD SET SCREWS

Milled	80-10 off
Upset 1 in. diam. and smaller	80-10-10 off

RIVETS

Struct., c.l., Pitts.-Cleve.	2.80c to 2.90c
Structural, c.l., Chicago	3.00c
**7/16-inch and smaller, Pitts.	70 and 10 off
Chi., Cleve.	70 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

WASHERS

Wrought, c.l., Pitts. dist.	$6.50 to 6.75 off
Wrought, c.l., Chicago dist.	$6.70 to 6.90 off
Lock: To dealers	85-5 off
Lock: To consumers	85 off

Raw Materials and Semifinished Products

SEMIFINISHED MATERIAL

Prices Per Gross Ton

BILLETS AND BLOOMS
4 x 4-inch base

Pittsburgh, open-hearth	$33.00 to 34.00
Pittsburgh, bessemer	33.00 to 34.00
Youngstown	33.00 to 34.00
Cleveland	34.00
Philadelphia	38.30 to 39.30
Chicago	35.00
Forging, Chicago	40.00
Forging, Pittsburgh	38.00
Forging, Philadelphia	43.30

SHEET BARS

Pittsburgh	$34.00
Youngstown	34.00
Cleveland	34.00
Chicago	35.00

SLABS

Pitts., Young., and Cleve.	$33.00 to 34.00

WIRE RODS

Pittsburgh, Cleveland	$42.00
Chicago	43.00

SKELP

All grades, Pittsburgh	1.85c to 1.90c

IRON ORE

LAKE SUPERIOR ORE
Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%	$4.55
Mesabi bessemer, 51½%	4.40
Old range nonbessemer 51½%	4.25
Mesabi nonbessemer, 51½%	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%	8.00
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN ORE

Cents per unit, alongside docks, Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-8% manganese	10.50 to 11.00
North African low phosphorus	10.00 to 11.00
Swedish foundry or basic, 65%	9.00 to 9.50
Spanish and North African basic, 50 to 60 per cent	8.50 to 9.00
Newfoundland foundry, 55%	8.50

MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

Brazilian	35 cents
Indian	35 to 36 cents
Caucasian (53-55 per cent)	38 to 40 cents

FLUORSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, imported duty paid, east, tidewater, gross ton	$19.40

REFRACTORIES

FIRE CLAY BRICK
Per 1000 f.o.b. works

First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham	50.00 to 51.00

MAGNESITE BRICK
Per Net Ton

9 x 4½ x 2½	65.00

MAGNESITE
Net Ton Chester, Pa., and Baltimore base

Dead-burned grain magnesite	40.00

CHROME BRICK
Net Ton Chester, Pa., and Baltimore base

9 x 4½ x 2½	45.00

Pig Iron

Market Continues Strong but Is Less Active —Furnaces Heavily Booked for First Quarter—Basic Easier—Shipments Heavy

WHILE underlying strength of the pig iron market still is manifest, and business continues fairly active, the present situation suggests a pause, after the feverish movement of prices and the rushing in of buyers with large orders, as noted in recent weeks. Some consumers now believe prices are not likely to go much higher and are deferring purchases in the hope they will be lower before the close of the year. The position of furnace interests is strengthened by the fact they have heavy bookings for first quarter and their stocks have been greatly reduced. On the other hand, a number of stacks are being ready for early resumption of operations. The first reappearance of a steelworks furnace in the merchant market resulted in a concession.

PITTSBURGH, Nov. 27.—The pig iron market still lacks active interest in first quarter requirements, and tonnages now being placed are generally limited to small lots. Demand for foundry iron is showing a bit more life. Although additional first quarter sales up to 1000 tons at a time have been made recently, such transactions are not numerous. Sellers report they are able to obtain $18, base, valley, on current business, with $17.50 valley for No. 3 and gray forge. Large melters are deferring purchases believing the market will not go higher, and that a reaction is possible before the end of the year. Producers' stocks are being steadily depleted. Bessemer sales are restricted to small tonnages, with $18.25, valley, generally prevailing, although $18.50 is obtained in some instances. Malleable is slightly more active at unchanged prices. Basic continues quiet, with lack of inquiry in the open market. While a Youngstown producer booked 3000 tons of basic for an Alliance, O., consumer at $17.50, furnace, $18 has not disappeared.

Boston, Nov. 27.—The total amount of pig iron sold in the New England district in the past week was about 3000 tons, of which Mystic Iron Works booked half. Buffalo furnaces received the bulk of the other half. No. 2 plain, from eastern Pennsylvania furnaces, is $24.15 to $24.65, delivered, Boston, while No. 2X is $24.65 to $25.15. Alabama iron was advanced 25 cents a ton during the week. There is no inquiry of note for first quarter.

New York, Nov. 27.—While activity in the pig iron market is not as pronounced as in recent weeks, demand continues good. Sales in the past week aggregated 9000 to 10,000 tons. New inquiries involve 5000 to 6000 tons. Most demand is for first quarter. Prices are firm, foundry iron generally being sold on the basis of $18, Buffalo, plus 50 cents for 2.25 to 2.75 silicon grade, with $1 additional for 2.75 to 3.25 silicon. Some business in malleable has been transacted on the basis of $18.50, Buffalo. Exceptions are much less frequent.

Buffalo, Nov. 27.—After heavy purchases for next quarter most consumers have withdrawn from the pig iron market. Deliveries indicate a high melt and good foundry business generally. A New Jersey consumer placed orders for 2000 tons of foundry and malleable. Prices are reported firm. The Bethlehem Steel Co. has lighted a sixth furnace at Lackawanna, having but one idle now. The Hanna Furnace Co. probably will have another stock in blast next month, while the Tonawanda Iron Co. is expected to renew operations about the same time. Production then will be at the high mark of the year.

Youngstown, O., Nov. 27.—An important local steelmaker, in the desire to reduce a prospective surplus of basic pig iron due to transferring the activities of two of its blast furnaces in the middle of next month, has just sold 3000 tons of standard basic pig iron for first quarter delivery at $17.50, valley. The buyer is an Alliance, O., steel castings maker. This same producer also has lost basic business, probably to adjoining districts, on a quotation of $18, valley, but it also has sold at $18. A nearby merchant furnace interest continues to sell standard basic against its prospective first quarter production at $18, valley. Several hundred tons of No. 2 foundry iron have been sold by valley furnaces the past few days at $18, valley, and malleable at $18 and $18.50. Several hundred tons of bessemer iron has gone at $18.50 and $19, valley. Confusion in the valley market is likely to be cleared away in the next 10 days, furnace interests believe.

The Struthers Iron & Steel Co.'s stack, idle for more than a year and a half, will be blown in before Dec. 15.

Cleveland, Nov. 27.—The pig iron market still is active, with sales by Cleveland furnace interests in the past week aggregating 41,000 tons, and with additional inquiries for around 16,000 tons pending. November shipments total slightly below those of October; some interests say it was because they had less iron available. One large producer estimates the December melt will be larger than that of November, for the trade in general. While business has been well sustained a considerable amount of iron remains to be purchased for first quarter, and if there is any change in the market it is toward a little more competition for business. This, however, has not resulted in any definite price changes, and the market as a whole continues to exhibit strength. A Cleveland producer is understood to have competed rather sharply for a small tonnage for first quarter shipment to a nearby foundry. Cleveland furnaces generally quote $19, base, furnace, for local delivery and $18.50, base, furnace, in distant competitive territory. Detroit furnace prices continue $20, base, for No. 2 foundry and $20.50 for malleable. One producer of silvery iron and bessemer ferrosilicon in Jack-

(*Concluded on Page* 1413)

Pig Iron Prices

Per Gross Ton

Bessemer, valley furnace	$18.25 to 18.50
Bessemer, del. Pittsburgh	20.01 to 20.26
Basic, valley furnace	17.50 to 18.00
Basic, del. Pittsburgh	19.26 to 19.76
Basic, Buffalo furnace	17.50
Basic, del. eastern Pa.	19.75 to 20.00
Malleable, valley furnace	18.00 to 18.50
Malleable, del. Pittsburgh	19.76 to 20.26
Malleable, del. Cleveland	19.50
Malleable, Chicago furnace	20.00
Malleable, Buffalo furnace	19.00
Malleable, del. eastern Pa.	21.50 to 22.00
Malleable, Granite City fur.	20.50
No. 1 foundry, Chicago furnace	20.50
No. 1X, eastern del., Phila.	22.26 to 22.76
No. 1X, Buffalo furnace	20.00
No. 2 foundry, valley furn.	18.00
No. 2 foundry, del. Pittsburgh	19.76
No. 2 plain, Buffalo furnace	18.50
No. 2 foundry, Chicago furnace	20.00
No. 2 foundry, Granite City	20.00
No. 2 foundry, Ironton furnace	18.50
No. 2 foundry, del. Cleveland	19.50
No. 2 plain, del., Phila.	21.26 to 21.76
No. 2 plain, Virginia furnace	20.00
No. 2 plain eastern Pennsylvania, del. Boston	24.15 to 24.65
No. 2 plain, N. J., tidewater	20.78 to 21.28
No. 2 Alabama, Birmingham	16.50
No. 2 Alabama, del. Cincinnati	20.19
No. 2 Tenn., Birmingham base	16.50
No. 2 Tenn., del. Cincinnati	20.19
No. 2 Alabama, del. Chicago	22.51
No. 2 Alabama, del. Cleveland	22.76
No. 2 Alabama, del. St. Louis	20.92
No. 2X, east, N. J., tidewater	21.28 to 21.78
No. 2X, eastern, del. Phila.	21.76 to 22.26
No. 2X, foundry, Buffalo furnace	19.00
No. 2X, eastern, del. Boston	24.65 to 25.15
No. 2X, Virginia furnace	20.50
Gray forge, val., del. Pittsburgh	19.26
Low phos., standard, valley	27.00
Low phos., standard, Phila.	24.26 to 24.76
Low phos., copper bearing fur.	23.00 to 23.50
Charcoal, Birmingham	28.00
Charcoal, Superior, del., Chicago	27.04

CANADIAN PRICES

No. 2 foundry, del. Toronto	23.60
No. 2 foundry, del. Montreal	25.00
Malleable, del. Toronto	23.60
Malleable, del. Montreal	25.00
Basic, del. Montreal	24.00

Silvery iron, Jackson county, O., furnaces, in per cents: 5—$23 to $24; 7—$25 to $26; 8—$26 to $27; 9—$27 to $28; 10—$29 to $30; 11—$31 to $32; 12—$33 to $34; 13—$35 to $36.

Bessemer ferrosilicon, Jackson county, O., furnaces, in per cents: 10—$31 to $32; 11—$33 to $34; 12—$35 to $36; 13—$37 to $38; 15—$41.50 to $42.50; 16—$43 to $44.

Coke

Weakening Tendency in Furnace Grade Slows Purchasing—Demand for Foundry Fuel Brisk

WHILE foundries are taking liberal coke shipments on contracts, and closing arrangements for first quarter at unchanged prices, interest in the beehive furnace coke market is less pronounced. The weakening tendency has caused some buyers to defer purchases, although several merchant stacks scheduled to go in blast soon are expected to absorb the surplus output.

Pittsburgh, Nov. 27.—The beehive coke market continues soft. No further decline is noted in prices, although one lot of distress furnace coke was sold recently at $2.60. On the general run of business sellers are able to command $2.75. Absence of steelworks buying is exerting a depressing influence. Several merchant stacks scheduled to go in blast within a month are expected to take up some of the extra coke production. Indications of a weakening market are deterring contract arrangements for first quarter. Foundry coke is steady, and a number of contracts have been signed at unchanged prices, namely $3.75 to $4.85, depending on grade. Heating coke is slightly more active. Medium sulphur coke is in better demand, and stronger. Sellers now are able to command around $2.65.

Production of coke in the Connellsvill region for the week ended Nov. 17 was 63,970 tons, compared with 63,720 tons the preceding week, according to the *Connellsville Courier*.

Boston, Nov. 27.—With New England coke ovens working at a high rate for a month producers have finally caught up with delivery schedules. A sharp increase in demand developed from all local foundries. Prices continue firm.

New York, Nov. 27.—Contracting for foundry coke for first half has been practically completed. Prices to be paid will be those prevailing at the time of shipment. In the meantime northern New Jersey by-product foundry coke continues $8.30, ovens, or $9 to $9.40, delivered at Newark, depending on freight. By-product foundry coke continues $11, delivered at most New England consuming points. High-grade beehive foundry coke from the Latrobe, Pa., district continues $4.85, ovens. Specifications against second half foundry coke contracts are active.

Cincinnati, Nov. 27.—Some of the largest manufacturers of coke have announced that December foundry prices will be the same as in November. The foundry coke movement for some of the heavy shippers has dropped 25 per cent from the October level. Beehive coke is sharing in the increased demand for domestic grades.

Detroit, Nov. 27.—Due to colder weather, the by-product domestic coke movement has been accelerated. Industrial demand has not taken a similar spurt because many foundries supplying castings to the automobile companies have curtailed schedules while preparing and presenting new models, although a few are expanding and need more coke. Foundry coke is unchanged at $8.50, ovens, or $9, dedelivered, Detroit.

St. Louis, Nov. 27.—Purchasing of metallurgical coke for immediate requirements is reported in satisfactory volume, and specifications on contracts also are good. Users are getting prompt service, and are not increasing stocks. By-product ovens in this area are operating at about the same average as the past six weeks. Prices are steady.

Birmingham, Ala., Nov. 27.—Coke production remains steady and shipments of the foundry grade are equal to production. Independent coke manufacturers have not stocked any of their product. Prospects are that local needs will be materially increased soon. Prices are steady.

Coke Prices

Prices per Net Ton

Beehive Ovens	
Connellsville furnace	$2.75 to 2.85
Connellsville foundry	3.75 to 4.85
New River foundry	6.50 to 7.00
New River furnace	6.50
Wise county foundry	4.50 to 5.25
Wise county furnace	3.75 to 4.75
By-Product Foundry	
Newark, N. J., del.	9.00 to 9.40
Chicago, ovens	8.00
New England, del.	11.00
St. Louis, del.	9.00
Birmingham	5.00
Indianapolis, del.	8.25
Ashland, Ky.	7.00
Portsmouth, O.	7.00
Detroit, ovens	8.50
Buffalo, ovens	9.00

Ferroalloys

Domestic Spiegeleisen Advanced—Most Consumers Covered

New York, Nov. 27.—Domestic spiegeleisen has been advanced $1 a ton. The new basis is $34, furnace, for 19 to 21 per cent. This applies to lots of a carload to 100 tons, with the usual deductions for larger tonnages. Prior to the advance a majority of consumers placed their full requirements for the first half. English spiegeleisen continues to be sold in moderate quantities. The manganese content usually is 24 to 28 per cent and customary price is $35, duty paid, tidewater.

A large portion of the trade has covered ferromanganese requirements over 1929. The price is firm at $105, duty paid, tidewater. Shipments of ferromanganese against second half contracts are heavy.

Tungsten continues to rise, with wolframite $11.30 to $11.50 a short ton unit, duty paid. Ferroalloys, such as silicon, chrome and vanadium, are unchanged. Contracting for next year is active.

Pittsburgh, Nov. 27.—Ferroalloy contracting for 1929 continues active and most consumers are expected to be booked within the next few weeks. Next year's contracts for ferromanganese and ferrosilicon will show no change from current levels of $105, seaboard, and $83.50, respectively. A large number of users of spiegeleisen have signed up at $33 a ton, furnace, for lots up to 100 tons, with quantity differentials prevailing on larger lots. Specifications for ferroalloys in November show only a small decrease compared with October.

Valley Operations Are at 83 Per Cent

Youngstown, O., Nov. 27.—Practically unchanged around 83 per cent as an average is the rate of iron and steel works operations in this district. While independents have lost one open-hearth unit from the active list, Carnegie Steel Co. has added two, giving independents 40 active out of 51 units, or 78 per cent, and Carnegie Steel Co. 80 per cent. Bessemer activity is unchanged. Wrought pipe mill activity includes 13 independent welded and seamless units out of a total of 20. Independent bar mills are at 60 per cent of capacity, and Carnegie Steel Co. 80 per cent. Four independent sheet units have been added to the active list since last week, making 111 now active out of a total of 127 units in the district. Strip steel capacity is 100 per cent occupied and independent tin mill capacity, while the Steel corporation subsidiary is 80 per cent active.

Ferroalloy Prices

Ferromanganese, 78 to 82 per cent tidewater duty paid	$105.00
Ferromanganese, del. Pittsburgh	109.79
Spiegeleisen, 19 to 21 per cent domestic furnace, spot†	34.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do., less carload	88.50
Do., 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	0.98 to 1.00
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload, producers plant, net ton	200.00
Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

†Quantity diff. apply on 100 tons and over.
*These prices contract, spot $5 higher.

Scrap

Prices Hold at Levels of Recent Recession—Buying Held at Low Level To Avoid Accumulation

AFTER the decline from the recent peak prices, the iron and steel scrap market seems well set and steady. Buying is being restrained as the end of the year approaches, though consumption is high. Supply is limited. Buyers are resisting prices. A quiet period until 1929 is forecast.

Chicago, Nov. 27.—Iron and steel scrap prices are holding their strength. Producers are holding scrap for higher prices, and dealers are forced to pay consumer prices in some instances to fill orders booked since the first of the month. Dealers have found it difficult to build up stocks. Heavy melting steel continues strong at $14.50 to $15, but leading consumers have sufficient supplies for two or three weeks. Some important buying is likely to be done before the end of the year, despite the fact that consumers are holding down stocks for inventory. Electric furnace axle turnings have advanced 25 cents. Low phos punchings are 50 cents higher. Railroad malleable is easier, as fewer orders are outstanding. Cast borings remain strong at $11.50 to $12, some producers hold supplies for $12 to $12.25.

New York, Nov. 27.—Following the rather general declines of the past three weeks, scrap dealers' buying prices have steadied. Only on a few grades has there been any reduction and those minor. There is, however, so little fresh consuming demand that the market is not being given a real

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except Detroit where dealers' buying prices are shown

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	$11.50 to 12.50
Boston, dealers	10.50 to 11.00
Boston No. 2	10.00 to 10.50
Buffalo, No. 1	16.00 to 17.00
Buffalo, No. 2	13.50 to 14.00
Chicago	14.50 to 15.00
Cincinnati, deal	13.25 to 13.75
Cleveland, No. 1	14.50 to 15.00
Cleveland, No. 2	14.00 to 14.50
Detroit, No. 1	13.50 to 14.00
Detroit, No. 2	11.00 to 11.50
East Pa., del. mill	15.50 to 16.00
East. Pa., deal. del.	14.50 to 15.00
N. Y., deal., R. R.	11.50 to 12.00
N. Y., deal., yd.	8.00 to 8.50
Pittsburgh, No. 1	17.00
St. Louis, No. 1	13.25 to 13.75
St. Louis, No. 2	12.50 to 13.00
Valleys, No. 1	17.00 to 17.50

COMPRESSED SHEETS

Buffalo	15.00 to 15.50
Chicago	13.00 to 13.50
Cleveland	14.00 to 14.50
Detroit	13.25 to 13.75
Pittsburgh	17.00
Valleys	17.00 to 17.50
E. Pa. new mat	13.00 to 13.50

BUNDLED SHEETS

Buffalo	11.50 to 12.00
Cincinnati, deal	10.50 to 11.00
Cleveland	12.00 to 12.25
Eastern Pa.	11.50
Pittsburgh	15.50 to 16.00
St. Louis	8.50 to 9.00

SHEET CLIPPINGS LOOSE

Chicago	7.50 to 8.00
Cincinnati	9.50 to 10.00
Detroit	8.50 to 9.00
St. Louis	8.50 to 9.00

STEEL RAILS, SHORT

Birmingham	12.00 to 13.00
Boston	8.25 to 8.75
Buffalo	17.00 to 18.00
Chicago	17.00 to 17.50
Cincinnati, deal	19.00 to 19.50
Detroit	17.00 to 17.50
St. Louis	17.50 to 18.00

STOVE PLATE

Birmingham	13.00 to 13.50
Boston consumers	11.00 to 11.50
Buffalo	14.00 to 14.50
Chicago, net	12.25 to 12.75
Cinn., deal., net	9.50 to 10.00
Cleveland	10.00 to 11.00
Detroit, net	10.00 to 10.50
Eastern Pa.	12.00 to 13.00
N. Y., deal., mill	8.25 to 8.75
Pittsburgh	11.50 to 12.00
St. Louis	12.25 to 12.75

SHOVELING STEEL

Chicago	14.50 to 15.00
Pittsburgh	17.00
St. Louis	13.25 to 13.75

KNUCKLES, COUPLERS SPRINGS

Buffalo	17.25 to 17.75
Chicago	16.25 to 16.75
Eastern Pa.	17.00 to 17.50
Pittsburgh	18.50 to 19.00
St. Louis	15.00 to 15.50

LOW PHOSPHORUS

Buffalo, billet and bloom crops	17.50 to 18.50
Cincinnati, deal	15.00 to 15.50
Eastern Pa.	19.00 to 20.50
Pitts. billet and bloom crops	21.00 to 21.50
Cleve. billet and bloom crops	17.00 to 17.50

FROGS, SWITCHES, GUARDS

Chicago	15.50 to 16.00
St. Louis	14.75 to 15.25

ANGLE BARS—STEEL

Buffalo	14.00 to 14.50
Chicago	16.00 to 16.50
St. Louis	14.75 to 15.25

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	9.50 to 10.50
Boston, dealers	11.00 to 11.50
Buffalo, No. 1	12.00 to 12.50
Buffalo, No. 2	15.50 to 16.00
Chicago, No. 1	14.25 to 14.85
Chicago, No. 2	14.50 to 15.00
Cinn., No. 2	13.25 to 13.75
Eastern Pa.	15.00 to 16.00
N. Y., No. 1 deal.	11.00 to 11.50
Pittsburgh, No. 1	13.50 to 14.00
Pittsburgh, No. 2	17.00
St. Louis, No. 1	13.00 to 13.50
St. Louis, No. 2	13.25 to 13.75

WROUGHT PIPE

Boston, dealers	9.75 to 10.00
Eastern Pa.	14.50 to 15.00
Boston	9.00 to 9.50
New York, deal	10.25 to 10.75

YARD WROUGHT

Boston	9.00 to 9.50
Eastern Pa.	15.00 to 15.50

BUSHELING

Buffalo	14.50 to 15.50
Chicago, No. 1	12.50 to 13.00
Chicago, No. 2	8.50 to 9.00
Cinn., No. 1 deal.	11.00 to 11.50
Cinn., No. 2	7.00 to 7.50
Cleveland, No. 2	11.25 to 11.50
Detroit, No. 1	12.50 to 12.75
Detroit, mixed	7.50 to 8.00
Pittsburgh, No. 1	13.50 to 14.00
St. Louis, No. 1	10.00 to 10.50

MACHINE SHOP TURNINGS

Birmingham	9.00 to 9.50
Boston	6.00 to 6.50
Buffalo	7.50 to 8.00
Chicago	7.50 to 8.00
Cincinnati, deal	9.25 to 9.75
Cleveland	9.50 to 10.00
Detroit	8.25 to 8.50
Eastern Pa.	11.00 to 11.50
New York, deal	7.00 to 7.50
Pittsburgh	10.75 to 11.25
St. Louis	7.00 to 7.50

MIXED BORINGS, TURNINGS
For blast furnace use

Boston, dealers	5.50 to 6.00
Buffalo	11.00 to 11.50
Cincinnati, deal	9.75 to 10.25
Cleveland	11.00 to 11.50
Detroit	9.25 to 9.50
Eastern Pa.	9.50 to 11.00
New York, deal	6.25 to 7.00
Pittsburgh	11.50 to 12.00

CAST IRON BORINGS

Birmingham, chem.	13.00 to 13.50
Birmingham, plain	9.00 to 9.50
Boston, chem.	10.00 to 10.25
Boston, dealers	6.25 to 6.50
Buffalo	11.00 to 11.50
Chicago	11.50 to 12.00
Cincinnati, deal	9.75 to 10.25
Cleveland	11.00 to 11.50
Detroit	9.25 to 9.50
Eastern Pa.	11.00 to 11.50
Eastern Pa., chem.	14.50 to 15.00
New York, deal	6.75 to 7.50
Pittsburgh	11.50 to 12.00
St. Louis	9.50 to 10.00
Valleys	12.50 to 13.00

PIPE AND FLUES

Chicago, net	8.50 to 9.00
Cincinnati, deal	8.50 to 9.00

RAILROAD GRATE BARS

Buffalo	12.50 to 13.00
Chicago, net	12.50 to 13.00
Cincinnati	10.00 to 10.50
Eastern Pa.	12.00 to 13.00
New York, deal	9.25 to 9.75
St. Louis	11.00 to 11.50

FORGE FLASHINGS

Boston, dealers	9.50 to 9.75
Buffalo	12.00 to 12.50
Chicago	9.00 to 9.50
Cleve., over 10 in.	12.25 to 12.75
Detroit	11.50 to 12.00
Pittsburgh (light)	14.00 to 14.50

FORGE SCRAP

Boston, dealers	6.00 to 7.00
Chicago	16.50 to 17.00
Eastern Pa.	12.00 to 13.00

ARCH BARS AND TRANSOMS

Chicago, net	20.50 to 21.00
St. Louis	21.50 to 22.00

Iron, Steel Works Scrap

AXLE TURNINGS

Boston, deal	6.75 to 7.00
Buffalo	12.00 to 12.50
Chicago	11.75 to 12.25
Cleveland	12.50 to 13.00
Eastern Pa.	12.00 to 13.00
Pittsburgh	15.00 to 15.50
St. Louis	11.50 to 12.00

STEEL CAR AXLES

Birmingham	16.00 to 17.00
Boston, ship point	16.00 to 16.50
Buffalo	18.25 to 18.75
Chicago	18.00 to 18.50
Cleveland	19.50 to 20.00
Eastern Pa.	22.00
Pittsburgh	20.50 to 21.00
St. Louis	19.25 to 19.75

SHAFTING

Boston, ship point	14.50 to 14.75
Chicago	17.35 to 17.90
Eastern Pa.	19.00 to 20.00
New York, deal	15.00 to 16.00
St. Louis	18.00 to 18.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	12.00 to 13.00
Boston, con.	14.00 to 14.50
Buffalo, iron	13.00 to 13.50
Buffalo, steel	17.25 to 17.75
Chicago, iron	14.25 to 14.75
Chi., rolled steel	17.50 to 18.00
Cincinnati	12.50 to 13.00
Eastern Pa., cast	16.50 to 17.00
Eastern Pa. rolled	17.00 to 17.50
N. Y., iron, deal.	12.00 to 12.50
Pittsburgh, iron	15.00 to 15.50
Pittsburgh, steel	18.50 to 19.00
St. Louis, iron	14.25 to 14.75
St. Louis, steel	16.00 to 16.50

No. 1 CAST SCRAP

Birmingham, cup.	14.50 to 15.50
Buffalo	15.50 to 16.00
Boston, textile	15.00 to 15.50
Chicago, mach.	17.00 to 17.50
Chicago, railroad	16.25 to 16.80
Chicago, agri.	15.70 to 16.25
Cincinnati, mach. cupalos, net deal.	16.00 to 16.50
Cleveland, cupola	16.00 to 16.50
Detroit, net	13.50 to 14.00
Eastern Pa. cupola	16.50 to 17.00
N. Y., cup., deal.	13.00 to 13.50
N. Y., del. local foundries	16.50 to 17.00
Pittsburgh, cupola	15.00 to 15.25
San Fran., del.	13.50 to 14.00
Seattle	15.50 to 15.75
St. Louis, mach.	15.00 to 15.50
St. Louis	14.00 to 14.50
Valleys	16.50 to 17.00

HEAVY CAST

Boston	10.50 to 11.00
Buffalo, breakable	12.50 to 13.00
Cleve., breakable	12.50 to 12.75
Detroit, auto., net	19.00 to 19.50
Detroit, breakable	9.00 to 9.50
Eastern Pa.	16.00
New York, deal	12.50 to 13.00
Pittsburgh	13.25 to 13.50

MALLEABLE

Boston, railroad	15.75
Buffalo	15.50 to 16.00
Chicago, agri.	13.00 to 13.50
Chicago, railroad	15.50 to 16.00
Cinn., R. R., deal.	14.75 to 15.25
Cinn., agri., deal.	13.75 to 14.25
Cleveland, agri.	15.00 to 15.50
Cleveland, rail.	16.00 to 16.50
Detroit, auto	14.50 to 15.00
Pittsburgh, rail	14.00 to 14.25
St. Louis, rail	15.00 to 15.50

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	11.50 to 12.50
Boston, dealers	11.00 to 11.50
Rails scrap, Boston	10.00 to 11.00
Skeleton, Boston	9.00 to 9.25
Buffalo	15.00 to 15.50
Chicago	16.50 to 17.00
Eastern Pa.	15.00 to 15.50
New York	11.50 to 12.00
Pittsburgh district	18.00 to 18.50
St. Louis	15.25 to 15.75

LOCOMOTIVE TIRES

Chicago, No. 1	14.50 to 15.00
Chicago, cut	17.00 to 17.50
St. Louis, No. 1	13.75 to 14.25

LOW PHOS. PUNCHINGS

Chicago	16.50 to 17.00
Pittsburgh	18.50 to 19.00

test, and opinion is divided as to what effect substantial inquiries would have.

Boston, Nov. 27.—Little change took place in the scrap market during the past week. Scrap rails were firmer, at $10 to $11, while forge scrap was lower at $6 to $7. Eastern Pennsylvania mills placed no business to speak of in the week, though several dealers are shipping there on contracts.

Philadelphia, Nov. 27.—Scattered buying marks the iron and steel scrap market. Consumers buy only necessities and avoid accumulating stocks before inventory.

Baltimore, Nov. 27.—Scrap is offered more freely here and prices are easier. Dealers have bought a large tonnage for the Sparrows Point plant of the Bethlehem Steel Co. on contracts paying $14, delivered. This week the top offering price is $13.50, delivered.

Buffalo, Nov. 27.—New buying of heavy melting steel is expected before the end of the week. Dealers are reported offering as high as $16.50 for No. 1 steel, for delivery on contracts or in anticipation of new contracts. Some fairly good sales of borings, No. 1 busheling, and hydraulic compressed are reported having been at old prices. The market is steady although not active.

Pittsburgh, Nov. 27.—Iron and steel scrap is quiet and dealers look for little mill buying before the middle of December. The situation generally is unchanged and although about 40,000 tons of heavy melting steel was placed in the recent buying movement, at $17, dealers are not disposed to take additional orders at that figure. Some difficulty is being experienced in purchasing heavy melting steel to apply on orders at better than $16.75. Specialties hold to a $19 top although knuckles and couplers are slightly weaker than other grades.

Cleveland, Nov. 27.—The iron and steel scrap market is almost void of consumer activity. Scrap prices retain their strength through dealer purchases to cover orders. No. 1 heavy melting steel is quoted at $14.50 to $15. At Youngstown, where some $18 orders are being covered, dealers are paying $17 to $17.50.

Detroit, Nov. 27.—Scrap shortage exists here. Many companies now taking or about to take bids on December lists offer about one-third their October or November tonnage. This means that Buick and other scrap producers expect to shut down for inventories, etc., from about Dec. 15 to Jan. 3. Some automobile makers now are idle except for bringing out new models. This makes for increased strength in open-hearth grades. No .1 heavy melting steel and hydraulic compressed sheets are up 25 cents. Other prices are unchanged. Foundries are reducing melt and this lends no support to the cast grades.

Cincinnati, Nov. 27.—The scrap market has entered a period of little new business except lots of 200 to 500 tons. Prices of loose sheet clippings and pipes and flues have been reduced 50 cents.

St. Louis, Nov. 27.—While actual exchanges are relatively light, the market for iron and steel scrap continues strong. Tonnages of moderate size of all grades change hands from day to day, but though consumers are in need of material, they resist present prices. Dealers are firm in demands, and are fortified by absence of surplus scrap. Railroad offerings are not large and yards contain scant tonnages and poor assortments.

Birmingham, Ala., Nov. 27.—Lessened production in pipe shops and other establishments has had an effect on iron and steel scrap demand. Quotations remain steady on same levels of last week, No. 1 heavy melting steel bringing $12.50.

Toronto, Ont., Nov. 27.—Demand for iron and steel scrap continues brisk. Inquiries are good and indicate increased interest by consumers. One inquiry for 2000 tons of machinery cast has been received but placing has been held up owing to difficulty in reaching a satisfactory price. Dealers complain of prices but with consumers in control there is little prospect of higher prices.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron axles	$22.00
Steel axles	20.00
Car wheels	16.00
Stove plate	13.00
Wrought pipe	5.00
Turnings	6.00
Heavy melting steel	7.50

TORONTO

Steel axles	14.00
Iron axles	16.00
Heavy melting steel	9.50
Turnings	7.00
No. 1 mach. cast (net)	15.00
Malleable (net)	13.00
Stove plate (net)	9.00

Steelmaking at Chicago Is Shrinking

Chicago, Nov. 27.—Owing to lighter orders, occasional hold-up shipments due to the advancing inventory season, and a lack of programs for some of the heavier mills, steelworks operations in the Chicago district again have dropped a few points and the ingot output is about 80 per cent of rated capacity. Twenty-three of the 36 steelworks blast furnaces in the district are active. Bar mill operations are about 80 per cent, plate mills are operating about 75 per cent, and structural mills 70 to 75 per cent. Illinois Steel Co. has 15 of its 27 furnaces active; Inland Steel Co. is operating three of its four.

Semifinished

Demand Is Less Urgent in Some Quarters—Prices Firm—Billets Slightly Higher at Chicago

CURRENT specifications for sheet bars, billets and slabs show little moderation from the recent high point. With some makers the pressure for material is less urgent, enabling them to catch up on shipping schedules. All makers in the Chicago district have adopted the advanced price of $35 for rerolling billets, the same level as for sheet bars.

SEMIFINISHED STEEL PRICES, PAGE 1398

Pittsburgh, Nov. 27.—Specifications for semifinished material are slow to decline. Operations of stripmakers continue heavy and although sheet production is off slightly the decrease has not been materially reflected in demand for sheet bars. Talk is heard of higher prices in the first quarter on billets, with some mention of a $34 minimum on 4 x 4-inch material and the same price on slabs. Current quotations are $33 and $34, with sheet bars firm at the latter figure.

Youngstown, O., Nov. 27.—Since consumers of billets and sheet bars have been able to obtain supplies as needed, sales continue to be only of routine character. No contracts have been closed for first quarter. Billets and slabs bring $33 and sheet bars $34, Pittsburgh and Youngstown.

Cleveland, Nov. 27.—Contracting for semifinished steel for first quarter is not expected to develop much volume until December. One contract for 12,000 tons of sheet bars for that period was booked in the past week at $34, Cleveland, which also is the base price on billets and slabs. Current specifications show no indications of diminishing. The leading local merchant producer has 15 to 18 days' specifications ahead of it, though continuing to operate at full capacity.

Philadelphia, Nov. 27.—Several hundred tons of billets were sold in the past week in this district at unchanged prices.

Chicago, Nov. 27.—Rerolling billets, 4 x 4-inch, now are $35, Chicago, all sellers having advanced the quotation. Sheet bars continue at $35. Stronger demand has been shown for forging billets. Forging billets sold in this district largely are in axle billet classifications. One seller reports several contracts for forging billets were completed by specifications, and that the users have placed additional mill orders for protection against early needs. Forging billets, 4 x 4-inch, are $40, base.

The Market Section

Bars

Somewhat Smaller Specifications Rule but Rate Is Good—Prices Extended into First Quarter

SEASONAL slackening of specifications for soft steel bars is reducing the rate of specifications as consumers limit their inventory. Small lots are the rule. Some shifting of small lots to warehouses is noted. Present orders are at the average rate for the year and total tonnage appears to be larger than for the same period of last year.

BAR PRICES, PAGE 1397

Pittsburgh, Nov. 27.—An independent producer has taken the lead in announcing a 1.90c to 2.00c, Pittsburgh, price on soft steel bars for first quarter. The 1.90c price is open to users of 1000 tons or more per quarter. All producers are expected to go on this basis. Specifications have improved slightly the past few days.

Chicago, Nov. 27.—With buyers showing more marked tendency to order out bars and other rolled steel products in smaller lots for direct and immediate consumption, finished steel buying has developed a more moderate gait. In some cases desire is shown to hold up shipments of material not needed for orders in immediate prospect, so pronounced has become the inclination for reduced inventories. The quantity differentials established a year ago on bars and small shapes, providing for lump sum extras on orders of 4000 pounds and less of a size, have shifted some piecemeal ordering to warehouses, but mill orders in recent weeks have become individually lighter. Schedules for December automotive buying indicate possible strengthening in demand from that source. Operations of bar mills are holding to about 80 per cent. Specifications are holding to the average weekly rate. Sales of all finished material gained over a week ago, but are not expected to be high for the remainder of the quarter.

Producers of soft steel bars have not opened books for first quarter and are not ready to make announcement as to prices for that period. Many miscellaneous buyers are paying 2.10c, Chicago, and over, due to light orders and quantity differentials.

New York, Nov. 27.—Consumption of steel bars continues high and sellers report good bookings, even though the present rate is below the average during late September and early October. On current new business the usual price is 1.95c, base, Pittsburgh, with 2.00c, base Pittsburgh, obtained on a good many small sales. The 1.90c, base, Pittsburgh, price is infrequent on new business.

Philadelphia, Nov. 27.—Steel bar demand is good, but under October and September. Prices continue 1.90c to 2.00c, Pittsburgh, this range to continue for first quarter.

Cleveland, Nov. 27.—Merchant steel bar specifications continue to lag although some attractive automotive and rivet tonnage was received by some outside mills. Tonnage is considerably ahead of 1927 to date and as far as November is concerned, most mills note an increase over November last year while the rest are equal to it. Outside mills are naming 1.90c, Pittsburgh, for first quarter to users of 1000 tons or more per quarter, with 2.00c to others. Local mills have been quoting 1.90c, Cleveland.

Detroit, Nov. 27.—For a week or 10 days merchant steel bar specifications have shown improvement over the preceding 10-day period. Tonnage includes attractive automotive specifications. Aggregates are lower than September, but pleasing for this season. They reflect the situation here with some automobile companies going into production on new models while others are paring down orders while getting ready to bring out theirs, or purposely avoiding stock accumulations so near inventory time. The usual quotation is 1.90c to 1.95c, Pittsburgh, but a Cleveland base of 1.90c recently took some small tonnage orders in Lansing, and other northern and western towns in the state of Michigan.

Strickland Kneass Dies

Strickland Landis Kneass, 67, vice president of William Sellers & Co., Philadelphia, died Nov. 25, following a brief illness. He was the inventor of a locomotive boiler injector device and other appliances. Mr. Kneass was born in Philadelphia and while he was graduated in 1880 from the Rensselaer Polytechnic institute as a civil engineer, he devoted most of his time to mechanical engineering.

The total number of bridges of all kinds over navigable waterways in the United States in 1927 was 6643, according to the National Rivers and Harbors congress.

Plates

Eastern Markets Most Active—Fourth Quarter Prices Extended to First by Some Makers

PRESENT activity in the plate market is most noticeable in the eastern district, where structural fabricators, shipyards, railroad car builders and many specialty manufacturers are taking considerable tonnage. Eastern pipe line projects now pending also require a large volume of plates. Oil storage tank work is providing western fabricators with a moderate share of business.

PLATE PRICES, PAGE 1397

New York, Nov. 27.—Plate bookings do not show any let-down such as reported from other districts. Tonnage continues to be ordered by structural fabricators. Demand for plates for ship repairs is better than usual. Some tonnage has been placed for railroad cars. Many specialty manufacturers are consuming plates at a rate considerably higher than usual. A 60-inch pipe line for Brooklyn is expected to be ready for bids in the next two weeks, requiring 4000 to 5000 tons of plates. Bids for the Wanaque pipe line in New Jersey are expected to be opened around Dec. 20. Prices on new plate tonnage continue 2.05c to 2.15c, base, Coatesville, or 1.90c to 2.00c, base, Pittsburgh, depending on which basis results in the lowest delivered prices.

Pittsburgh, Nov. 27.—Plate specifications continue below the rate of a month ago, although the tapering off since early in November has been slight. The outlook in the oil industry gives an improved aspect to future demand for plates for tank and pipe line work, and recent improvement in freight car awards is expected to be reflected in plate demand. First quarter prices are 1.90c for 1000 tons or more per quarter, and 2.00c to others.

Cleveland, Nov. 27.—Piecemeal business for plate mills is contributed by diversified industries, in the absence of orders from locomotive and car shops and oil tank fabricators. Small boiler and tank shops take only what they require, and shipyards order for repairs. Most of these orders carry 1.90c, Pittsburgh, although larger buyers specify against 1.90c contracts. First quarter prices are 1.90c, Pittsburgh, on 1000 tons or more per quarter, and 2.00c to others.

Detroit, Nov. 27.—Some large plate tonnages for repairs are expected during the next few weeks from shipyards. Bidders on the two car ferries for the Pere Marquette railroad are being asked to submit new bids on the design submitted by the low bidder,

the Manitowac Shipbuilding Co., on the original inquiry. About 3600 tons are involved. The Great Lakes Engineering Works is bidding on the inquiry of the Pittsburgh Steamship Co. for one or two lake freighters, taking 5000 tons each. Miscellaneous plate demands are meager but prices are firm, 1.90c to 1.95c, Pittsburgh.

Chicago, Nov. 27.—About 5000 to 6000 tons of tank plates is on inquiry from the Southwest and Pacific coast territory, but only 2000 to 3000 tons of oil tankage was placed with Chicago district mills during the week, in contrast with recent heavy lettings. Deliveries are three to four weeks deferred on smaller sizes, but mills rolling the wider plates have light schedules. Specifications from miscellaneous manufacturing lines are at the average weekly rate of the past two months. Warehouse handling of lighter plates has increased as buyers have started to hold up occasional mill shipments to keep down stocks. Operations are 75 to 80 per cent. The price is unchanged at 2.00c to 2.10c, Chicago, to miscellaneous buyers. Mills have not opened first quarter books.

Philadelphia, Nov. 27.—Plate demand continues active, with prices 2.05c to 2.15c, base, Coatesville, although exceptions continue to be made on especially attractive business. It is indicated mills will continue present prices through first quarter. The Sun Shipbuilding & Drydock Corp. has been awarded a contract for a 10,000-ton vessel for the American South African Line, New York. About 7000 tons of steel required will be placed with the leading producer.

The Bethlehem Steel Co. will supply the steel for the Grace liner recently placed with the New York Shipbuilding Co.

CONTRACTS PLACED

10,000-ton steamer for American South African line, New York, awarded to Sun Shipbuilding & Drydock Co. Steel requirements, 7000 tons, mainly plates, to be placed with leading producer.

900 tons, three 82,000-barrel tanks, Shell Oil Co, San Francisco, to Steel Tank & Pipe Co.

900 tons, three 82,000-barrel tanks, Shell Oil Co., San Francisco, to Western Pipe & Steel Co.

500 tons, oil storage tanks for Ingleside Co., gulf coast, to Reeves Bros. Co., Birmingham, Ala.

CONTRACTS PENDING

5000 or 10,000 tons, depending upon whether one or two lake freighters are awarded by Pittsburgh Steamship Co., Cleveland.

2000 to 3000 tons, oil tankage for Southwest and Pacific coast refineries, to unstated fabricator.

3600 tons, two car ferries, Pere-Marquette railroad. Bidders on original inquiry being asked to submit new bids on design accompanying low bid presented by Manitowoc Shipbuilding Co.

George F. Steedman, president, Curtis Mfg. Co., St. Louis, has given the St. Louis public library a collection of books on architecture and funds for an addition to house them.

Pipe

Milwaukee - Pittsburgh Mills Share 76,500 Pipe Line Tonnage —Cast Demand Sluggish

LINE pipe for installation between Tulsa, Okla., and Lockport, Ill., has been divided, 5000 tons going to a Pittsburgh mill and 71,500 to a Milwaukee interest. Advancing pig iron helps to stabilize cast pipe prices. Municipal work is lacking everywhere but a few private inquiries are out. Birmingham and Chicago plants curtail output to harmonize with demand.

PIPE PRICES, PAGE 1398

Pittsburgh, Nov. 27.—Demand for tubular products for oil drilling operations is slightly more active. Mills look for a good volume of business from this source in the near future. Several pipe line jobs still are pending and recent awards have served to increase backlogs depleted by steady operations. Only about 5000 tons (the 6⅝-inch portion) of the Texas Corp.-Empire Gas & Fuel Co. line, will be made here by Spang, Chalfant & Co. The 630 miles of 12¾-inch pipe went to the A. O. Smith Corp. Spang, Chalfant's welded pipe mills are operated at about 85 per cent and the seamless mills at 80 per cent. Wrought iron pipe demand is off seasonally.

New York, Nov. 27.—Except for a few fair sized private inquiries, little cast pipe demand is pending. In fact, municipal demand appears momentarily at a standstill and trading generally is well below expectations of most sellers. Prices, meanwhile, are unchanged, with advancing pig iron prices serving as a stabilizing factor under the existing dull conditions.

Cleveland, Nov. 27.—Pipe orders hold up well for this season. Plumbing supply jobbers are buying fairly numerous lots of ¾-inch galvanized and other popular sizes to keep their stocks well trimmed. Mill supply house orders for 1¼-inch to 1½-inch black also have been plentiful. Some of these carloads involve 25 to 40 tons instead of the minimum 36,000 pounds.

Detroit, Nov. 27.—Purchasers of standard merchant buttweld pipe are confined to single carloads by jobbers. Muskegon, Mich., is taking an increasingly large amount of oil well casting, drill pipe, etc. Continental Motors Corp. has drilled several wells on its own property and will drill more. The Central Development Co., Chatham, Ont., is in the market for a 10-mile pipe line for piping gas from the Muskegon field.

Chicago, Nov. 27.—Cast iron pressure pipe sellers are booking odd lots for private and contract work. This is typical at this season, with no important municipal tonnage appearing. Several pressure pipe plants have reduced operations to three days a week. Backlogs average about 30 days at most plants. Some municipal feelers are out for winter buying, and public utilities are expected to specify next month. Prices are steady at $45.20 to $46.20, Chicago, for 6 to 24-inch pipe.

Birmingham, Ala., Nov. 27.—Cast iron pressure pipe lettings have been light. Unfilled tonnage is steadily being decreased. The new base price of $37 to $38 on 6-inch and over sizes is being maintained. Production has been reduced in all shops. No stock is being carried, output being gaged entirely by demand.

CONTRACTS PLACED

71,500 tons, 630 miles of 12¾-inch pipe for Texas Corp. and Empire Gas & Fuel Co., to A. O. Smith Corp., for a line from Tulsa, Okla., to Lockport, Ill.

5000 tons of 6⅝-inch pipe for Texas Corp. and Empire Gas & Fuel Co., to Spang, Chalfant & Co., Pittsburgh, for installation between Tulsa, Okla., and Lockport, Ill.

1915 tons, 24-inch Class B to F pipe, Volunteer Park project, Seattle. General contract to L. Coluccio.

150 tons, 20 and 36-inch cast water pipe and fittings for department of water supply, gas and electricity for the Bronx, New York, reported placed through Beaver Engineering Co. with Warren Foundry & Pipe Co.

1050 tons, Sixth avenue Denny Hill project, Seattle, 8, 12, 20, 24 and 30-inch Class C to Pacific Water Works Supply Co.

300 tons, East Olive Way project, Seattle, 30-inch Class A and B, to Pacific Water Works Supply Co.

200 tons, East Prospect street project, Seattle, 24-inch Class B to F, to Pacific Water Works Supply Co.

100 tons, Aberdeen, Wash., improvement, to American Cast Iron Pipe Co.

CONTRACTS PENDING

292 tons, 4 to 8-inch class C, Friday Harbor, Wash. Bids Nov. 30.

German Pig Iron Dumping Order Rescinded

Washington, Nov. 27.—Collectors of customs have been informed of the discontinuance of the dumping of pig iron from Germany, as forecast in this publication last week. Secretary of the Treasury Mellon has sent the following notice to collectors:

"The department is informed that the practice which necessitated the issuance of the finding of dumping of pig iron from Germany has been discontinued.

"Customs officers are, therefore,

hereby instructed to take no action under the said finding of dumping in the case of German pig iron exported to the United States on or after the date hereof, but they will scrutinize all such importations and report to the department any indications of a resumption of the practice of dumping."

Tin Plate

Consumers Contracting for First Half at Advanced Price

TIN PLATE PRICES, PAGE 1397

Pittsburgh, Nov. 27.—Tin plate producers are receiving contracts for the first half at the recently announced price of $5.35 per 100-pound box, Pittsburgh. Operations are fairly steady, but an increase is expected soon in production for January requirements. Mills are looking forward to an active year because packs of several crops this year were restricted by adverse weather. The same circumstance will determine 1929 can demand. Other tin plate users are fairly active buyers.

Bolts, Nuts, Rivets

Specifications Holding Except in Automotive Demand

NUT AND BOLT PRICES, PAGE 1398

Chicago, Nov. 27.—Specifications for bolts, nuts and rivets are holding up in all lines except automotive. Producers are preparing to take contracts for first quarter about Dec. 1, and no announcement has been made of change in price for that period. Prices are steady at 60 to 70 off for machine and carriage bolts. Structural rivets are 3.00c, Chicago, in carload lots, and small rivets are 70 to 70 and 10 off.

Pittsburgh, Nov. 27.—Specifications for nuts, bolts and rivets hold to the level of earlier this month. Contracting for next quarter's requirements is expected to be under way within the next few weeks with no change anticipated in prices. Operations continue at 60 to 65 per cent. Prices are firm at 60 to 70 off for bolts and nuts, and 2.90c, Pittsburgh, for large rivets.

Cleveland, Nov. 27.—Nut and bolt specifications have mounted and will partially make up for the quiet period earlier in the month. Pressure is becoming severe upon makers to open books for first quarter. This probably will be done late this week. No change in the discount, 70 per cent off, is contemplated. Rivet tonnage is fair.

Standard fireproofing specifications, as drafted by the American Institute of Steel Construction, have been adopted by the city of Montclair, N. J., the first city in the United States to take this action.

Sheets

Market Activity Fairly Well Sustained — Europeans Want 10,000 Tons of Autobody Sheets

THE volume of sheet business shows less recession than noted in some other lines of finished steel. Contracting for first quarter at the new advanced prices is fairly active. Operations continue at a high rate. Domestic orders have tapered off slightly because of the approach of the inventory period, while export inquiries have increased.

SHEET PRICES, PAGE 1397

Pittsburgh, Nov. 27.—Sheet specifications continue active, and despite some decline November is expected to compare favorably with October. Contracting for first quarter is fairly brisk, although mills are not soliciting contracts. In all cases sellers report the recent advance of $2 a ton holds. Prices are 2.85c for sheet mill black, 3.60c for galvanized, 2.10c for blue annealed, 3.00c for tin mill black, and 4.10c for autobody. Specifications from motorcar builders and makers of automobile parts indicate that less than the usual seasonal decline in operations will occur the rest of the year, and prospects for early 1929 are considered bright. Business with other lines of sheet users continues active, though below the peak demand of past weeks. This situation is reflected in plans of American Sheet & Tin Plate Co. for installing additional furnaces at Vandergrift.

New York, Nov. 27.—Sheet consumption continues high. Some mills report specifications in this territory as good as at any time in the past few months. Others report a diminution in bookings. All makers now are asking the advanced prices, namely 2.10c, base, Pittsburgh, for blue annealed, 2.85c for black, 3.60c for galvanized and 4.10c for full finished.

Youngstown, O., Nov. 27.—While domestic sheet sales have tapered off for the inventory period, appreciable increase is noted by local mills in the volume of new inquiries being received here from European automotive builders. These are for high-grade autobody sheets and body stampings. Four thousand tons of American autobody sheets are wanted in Germany, 3000 tons in Czecho-Slovakia and 2500 tons in France. While the sizes are on the European metric system, roughly they figure out to No. 20 to 22 gages, 39 x 78 inches. They are wanted for delivery in the first quarter. Valley mills are negotiating actively for this business. An Atlantic coast bodymaker now is operating at capacity to ship abroad to foreign branches of American auto builders the required stampings for body purposes. Meanwhile, routine sales of various grades of sheets continue for this year's delivery. Chevrolet is distributing among valley makers a growing volume of new business against mid-December quantity production of new 6-cylinder models. Quotations are 2.85c, Pittsburgh, for black, 3.60c for galvanized, 2.10c for blue and 4.10c for autobody.

Philadelphia, Nov. 27.—The Pennsylvania railroad opened bids Tuesday on 700 tons of sheets for first quarter. All mills named 2.10c, base, Pittsburgh, for blue annealed, 2.85c for black and 3.60c for galvanized, or equivalent of these Pittsburgh base prices, except a quotation of 2.00c on blue annealed by Lukens Steel Co. Sheet demand continues good, with higher prices generally in effect on new business.

Cleveland, Nov. 27.—Several sheet-makers have received specifications against first quarter contracts. Shipment will be made during the first three weeks in January. Some mill schedules were stepped up because of the large aggregate tonnage required. The higher prices apply. A large aggregate tonnage is being booked for first quarter.

Detroit, Nov. 27.—Some sheet fabricators are calling for more material, after a brief letdown. A few, contemplating inventories, are holding down on specifications. Inquiries are developing for first quarter, including those from Chevrolet, Fisher Body, Chrysler and others. Some arrangements probably will be closed this week. Buyers are exerting much pressure for the unchanged prices.

Chicago, Nov. 27.—Chicago district mills announce opening of books for first quarter for black, galvanized and blue annealed sheets. Consumers are active in taking out tonnage for immediate consumption, but inclined to hold up shipments of material that is not necessary for orders at hand. Tonnage volume has eased off in the past four weeks. Prices for spot and first quarter shipment are holding at the recent advances. Chicago delivered prices are 3.00c for No. 24 black; 3.75c for No. 24 galvanized; and 2.25c for No. 10 blue annealed.

St. Louis, Nov. 27.—Sheet demand is fairly well sustained. Specifications are diversified. New prices announced by the Granite City Steel Co., division of the National Enameling & Stamping Co., are as follows: One pass cold rolled black, 2.95c; blue annealed, 2.20c, galvanized 3.70c.

Canadian estimates are that mineral production in the dominion in 1928 will reach $100,000,000.

Structural Shapes

26,500-Ton Job Let in East Swells Weekly Average—Bridge Work Predominates—First Quarter Contract Prices Are Unchanged

WITH a 26,500-ton lot heading the list, bridge work predominates in the week's structural news. This is for the Kill Van Kull bridge. Other bridge lettings include 5200 tons at Madison, Ind.; 3000 tons at Cleveland; 1300 tons for Louisville & Nashville; and several smaller items. Other awards for buildings are fairly numerous and run up a good aggregate. One 7000-ton lot is included. Pending work includes numerous individual lots between 1000 and 5000 tons at a time, most of which will be placed shortly. Factory buildings at Boston and Massena, N. Y., take 4000 and 2000 tons respectively. On first quarter contracts, some mills will charge 1.90c when the quarter's tonnage runs 1000 tons or more. Smaller tonnages will carry a 2.00c price.

STRUCTURAL SHAPE PRICES, PAGE 1397

New York, Nov. 27.—Following the recent lull, structural demand here is much more active. Heavier tonnage is being placed and prospective work of size appears nearer at hand. Outstanding is the tentative award of 26,500 tons for the third Kill Van Kull bridge of the Port Authority commission. A 7000-ton insurance building has been placed at Hartford, Conn., and a 5000-ton loft building at Thirty-ninth street and Seventh avenue is expected to be closed before the end of this week. In addition, 2500 tons of subway work and a 2000-ton office building here have been let, with a 2000-ton inquiry for factory buildings at Massena, N. Y., among leading fresh industrial items. Approximately 2500 tons of miscellaneous bridge work has been recently issued. Shapes are unchanged at a 2.195c, New York, minimum.

Boston, Nov. 27.—About 1300 tons of structurals was placed in the past week. In addition free buying of odd tonnages, running from 60 tons down, was noted. The Boston & Maine railroad's new hotel, 1100 tons, was let as were its three bridges, 193 tons. The George A. Fuller Co. has awarded the general contract to build the 27-story United Shoe Machinery Co. building; steel awards are looked for in the near future which may reach 4000 tons.

Philadelphia, Nov. 27.—Shape mills are somewhat less aggressive in looking for new business than they were several weeks ago. Prices are unchanged, with the Philadelphia delivered market 2.00c to 2.11c, base.

Pittsburgh, Nov. 27.—Several awards of fabricated structural steel each below 1000 tons are noted. Pending work and current inquiry indicate that industrial building and engineering construction work will be well maintained for at least a few months. Some fabricators report a good volume of small-lot business and are well engaged on old work. Specifications for plain structural material are steady but less active than a month ago.

Buffalo, Nov. 27.—Deliveries are well under way on 1500 tons of structural for the new Seneca telephone exchange building here, the Lackawanna Steel Construction Co. having the contract. Not much other large business is in immediate prospect. Structural mills, however, are being operated double turn on old orders.

Cleveland, Nov. 27.—Approximately 3000 tons is involved in catenary bridges and other work let by Cleveland Union Terminals Co. to Fort Pitt Bridge Works. Bids close Dec. 4 on the Akron, O., hangar job, steel to be delivered 3000 tons monthly, beginning with the award. On that account it probably will go in one of four directions, since only about four shops can make the required delivery. New inquiry is scarce and mill specifications lag somewhat. Prices are unchanged for first quarter. Buyers taking 1000 or more tons per quarter will pay 1.90c, Pittsburgh. Smaller tonnages command 2.00c.

Detroit, Nov. 27.—While market activity in structural shapes is confined mostly to jobs involving less than 500 tons, many larger projects are maturing. Additions to the recently-opened Fisher building, originally scheduled to extend over four years, will probably be completed in 1929 and take approximately 25,000 tons. A public utility will take early bids on a 30-story building. Several other office buildings are projected, which, if they materialize, will make 1929 exceed 1927 as an office-building building year. Mill specifications are well maintained and prices are firm at 1.90c to 1.95c, Pittsburgh.

Chicago, Nov. 27.—Mill specifications for plain structural material were active during the week from fabricators. These are taking out material for individual jobs and to piece out work booked earlier in the season. About 5000 tons of railroad bridge work has been placed, adding to the heavy volume of bridge steel that has been ordered out this year. Inquiries have appeared here for a round tonnage for highway bridge work in Alabama. An important structural mill is operating close to 80 per cent, but another mill has been forced to reduce its schedule, which brings the average for the district to about 70 to 75 per cent. No announcement has been made by mills as to first quarter prices. Present quotations are on the basis of 2.00c to 2.10c, Chicago, except to quantity buyers.

Awards Compared

	Tons
Awards this week	71,989
Awards last week	43,547
Awards two weeks ago	10,916
Awards this week in 1927	37,290
Average weekly awards, Nov.	46,227
Average weekly awards, 1928	40,261
Total awards to date, 1927	1,704,149
Total awards to date, 1928	1,892,269

CONTRACTS PLACED

26,500 tons, bridge over Kill Van Kull, between Bayonne, N. J., and Staten island, New York City, contract placed by port authority commission with American Bridge Co., previously noted as low bidder, subject to approval of governors of New York and New Jersey. The American Bridge Co.'s bid was $5,041,770.

7000 tons, Etna Life Insurance building, Hartford, Conn., to Levering & Garrigues Co.

5200 tons, bridge over Ohio river for Madison Bridge Co., Madison, Ind., to Mt. Vernon Bridge Co.; J. G. White Corp., New York, is identified with financing of project.

3000 tons, catenary bridges, with other steel work including platforms, Cleveland Union Terminals Co., Cleveland, to Fort Pitt Bridge Works.

2500 tons, shoring steel for subway work, New York, placed through Clemente Construction Co. Inc., with American Bridge Co.

2000 tons, office, Forty-seventh street and Madison avenue, New York, to Levering & Garrigues Co.

1902 tons, plant, Murray Body Corp., Detroit. To be rolled by Carnegie Steel Co. Fabrication as noted in last week's issue by Mahon Structural Steel Co.

1800 tons, building, Chrysler Corp. of Canada on 70-acre site between Ford and Walkerville, Ont., to Canadian Bridge Co.

1600 tons, apartment, Wilshire boulevard, Los Angeles, to Union Iron Works.

1500 tons, addition, Seneca exchange, New York Telephone Co., Buffalo, to Lackawanna Steel Construction Co.

1500 tons, bridge work, Southern Pacific railroad, San Francisco, to American Bridge Co.

1300 tons, bridge work for Louisville & Nashville railroad, to American Bridge Co.

1150 tons, junior high school, Upper Darby, Pa., to McClintic-Marshall Co.

1100 tons, bridge work, Northern Pacific railroad; 900 tons to American Bridge Co., and remainder divided between Minneapolis Steel & Machinery Co. and St. Paul Foundry Co. Noted last week to unstated interest.

1100 tons, hotel adjacent to Boston & Maine railroad station, Boston, to New England Structural Co.

1075 tons, Astor apartment, 520 East Eighty-sixth street, New York, to Hedden Iron Construction Co.

1000 tons, miscellaneous highway bridge work in Indiana and Michigan, to Indiana Bridge Co.

918 tons, boiler house, Monessen, Pa., to McClintic-Marshall Co.

900 tons, school 96, Bronx, New York, to Harris Steel Construction Co.

898 tons, cement plant, A. S. Davison Co., Neville island, Pittsburgh, to McClintic-Marshall Co.

850 tons, auditorium, Industrial Mutual association, Flint, Mich., to Flint Structural Steel Co.

800 tons, apartment hotel, east Eighty-third street, New York, to Easton Structural Steel Co.

700 tons, four bridges for Delaware, Lackawanna & Western railroad, Jersey City, N. J., to American Bridge Co.

600 tons, bridges, Indiana state highway commission, to Rochester Bridge Co.

555 tons, building, Midwest Apparel Co., Chicago, to American Bridge Co.

544 tons, power house, DuPont Engineering Co., Waynesboro, Va., to Virginia Bridge & Iron Co.

400 tons, social service building, University of Chicago, to Wendnagel & Co.

350 tons, Zembo temple, Harrisburg, Pa.; to Jones & Laughlin Steel Corp.

350 tons, addition, Motor Wheel Corp., Lansing, Mich., to Jarvis Engineering Co.

344 tons, office building, 719 South Spring street, Los Angeles, to Llewellyn Iron works.

300 tons, bank building, City National Bank & Trust Co., Battle Creek, Mich., to Rochester Bridge Co. Noted in issue of Nov. 15 as going to unstated fabricator.

300 tons, two apartments on Broadway, San Francisco, to Golden Gate Iron Works.

300 tons, pier shed, city docks, New Orleans, to Virginia Bridge & Iron Co.

300 tons, engineering building, Lafayette college, Easton, Pa., to McClintic-Marshall Co.

285 tons, stage bulding, Paramount Film Corp., Los Angeles, to Union Iron Works.

260 tons, dormitories, Duke Construction Co., Durham, N. C., to Virginia Bridge & Iron Co.

260 tons, power house, John P. Pettyjohn & Co., Nitro, W. Va., and club building R. P. Farnsworth & Co., New Orleans, La., to Virginia Bridge & Iron Co.

250 tons, telephone exchange building, Michigan Bell Telephone Co., Port Huron, Mich., to Whitehead & Kales Co.

243 tons, Gardner bridge, Portland, Ore., to unstated interest.

230 tons, Kalama river bridge, Olympia, Wash. to unstated interest.

231 tons, bridge work, Baltimore & Ohio railroad, to unstated interest.

230 tons, high and elementary schools, Pontiac, Mich., to Rochester Bridge Co.

220 tons, shop addition for Buda Co., Harvey, Ill., to American Bridge Co.

203 tons, one each 75 and 105-foot plate girder spans, Rock Island, to American Bridge Co.

200 tons, boiler house, Cannon Mfg. Co., Kannapolis, N. C., to Southern Engineering Co.

200 tons, sheet mill building, Brackenridge, Pa., to Fort Pitt Birdge Works.

200 tons, Isaacson Iron Works plant extension, Seattle, to Isaacson Iron Works.

193 tons, three bridges, Boston & Maine railroad, to Bethlehem Bridge Works.

180 tons, factory, Stauffer Chemical Co., Los Angeles, to Union Iron Works.

175 tons, Delaware & Hudson railroad bridge, Lanesboro, Pa., to American Bridge Co.

160 tons, cleaning building, Hillman Coal & Coke Co., Pittsburgh; to Jones & Laughlin Steel Corp.

150 tons, high school, Owosso, Mich., to Rochester Bridge Co.

150 tons, Bank of Italy, Sacramento, Calif., Palm Iron Works.

150 tons, building at Milford, N. J., to Montgomery Iron & Steel Co.

132 tons, boiler house, Barber Asphalt Co., St. Louis, to McClintic-Marshall Co.

113 tons, apartment, Second and Washington streets, Santa Monica, Calif., to Baker Iron Works.

100 tons, addition, Wilcox-Rich Corp., Saginaw, Mich., to Flint Structural Steel Co., through Federal Construction Co., general contractor.

100 tons, plant, Kay Steel Co., Los Angeles, to Union Iron Works.

CONTRACTS PENDING

25,000 tons, additions to recently opened Fisher building, Detroit. Project to go ahead 1929 instead of over next 4-year period.

5000 tons, Shroder & Koppel loft, Thirty-ninth street and Seventh avenue, New York, previously noted pending, award expected this week.

4000 tons, building for United Shoe Machinery Co., Boston. General contract awarded the George A. Fuller Co.

3000 tons, new plant, Chase Brass & Copper Co., Babbitt road, Euclid, O., near Cleveland, the Austin Co.

2000 tons, factory buildings for Aluminum Co. of America, Massena, N. Y.

1500 tons, building, Continental Life Insurance Co., St. Louis.

1100 tons, 3-story addition to North station of Boston & Maine railroad, Boston.

1100 tons, state highway bridge at Ridgefield Park, N. J.

1000 tons, 12 bridges for Boston & Maine railroad.

1000 tons, 15-story bank building, Union Trust & Savings bank, Flint, Mich. Smith, Hinchman & Grylls, Detroit, architects drawing plans.

1000 tons, 14-story apartment, 4 East Seventy-second street, New York, George A. Fuller Co., Flatiron building, general contractor in charge.

971 tons, customs building, in connection with the Detroit-Windsor, Ont., tunnel. Plans out. Bids Dec. 3.

950 tons, 16-story apartment, 327 Central Park west, New York.

850 tons, 16-story apartment, 423-29 East Eighty-sixth street, New York.

800 tons, new Renton plant of Puget Sound Power & Light Co.; bids Nov. 24.

715 tons, Memorial hospital, Arlington, N. J., previously noted as involving 1000 tons.

700 tons, coal handling building, Superior, Wis.

500 tons, addition to Picatinny arsenal, Dover, N. J.; general contract awarded to Asdlen Construction Co., Philadelphia, on a bid of $793,516.

400 tons, railroad bridge, South Bend, Ind., for Grand Trunk railroad. General contract let to unstated interest; steel to be bought in spring.

400 tons, stormwater tunnel, Conner's creek, Detroit, for Detroit. Bids in.

200 tons, Baltimore & Ohio railroad bridge on Staten island, New York .

170 tons, bridge near Benham, Calif. Bids received.

150 tons psychiatric hospital, Syracuse, N. Y. General contract to W. F. Hendrich Co., Cleveland.

140 tons, state highway bridge, Metuchen, N. J.

100 tons, Morse creek bridge, Yakima county, Wash., general contract awarded to Chas. G. Huber, Portland.

Unstated tonnage, Shrine temple, Altoona, Pa.

Unstated tonnage, Masonic temple, Toledo, O., Langdon, Hohly & Gram, Nicholas building, Toledo, architects revising plans. Bids soon.

Unstated tonnage, King county hangars, Seattle; plans being prepared by the Austin Co.

Unstated tonnage, new plant, Geometric Stamping Co., Chardon road, Euclid, O. General contract awarded Austin Co.

Unstated tonnage, new plant to cost $7,000,000 at Gadsden, Ala., for the Goodyear Tire & Rubber Co., Akron, O.

Concrete Bars

Chicago Prices Firm Up—Schools There Take 2000 Tons—1800-Ton Job Is Let

FABRICATORS at Chicago show a firmer price policy in advancing to 2.35c on billet rolled concrete bars, effective Dec. 1. One 2000-ton lot is pending there. Buffalo has 800 tons under inquiry. Pittsburgh mills note a good demand for stock lengths. Recent outstanding awards include 1800 tons at Berkeley, Calif.; 660 tons at Amenia, N. Y., 400 tons at Chicago.

REINFORCING BAR PRICES, PAGE 1397

Chicago, Nov. 27.—Several billet reinforcing bar fabricators announce higher quotations effective Dec. 1. They now name a minimum of 2.35c for carloads and over, while less-than-carload orders are listed up to 2.60c. Shipments are heavy on orders placed during the summer and autumn. Inquiry for orders to be placed after the first of the year is taking definite form. Bids were received yesterday for four junior high schools in Chicago, totaling close to 2000 tons. Rail steel bar shipments likewise are heavy. The rail steel reinforcing bar price is reported fairly steady at 2.00c to 2.60c, Chicago.

Boston, Nov. 27.—Small lots let in concrete bars totaled 150 tons in the past week, hence the situation develops little change. Several projects are pending but order placing is slow. Only three or four jobs of size are up for immediate action. Prices, however, rule firm.

Pittsburgh, Nov. 27.—The concrete reinforcing bar market is quiet, both awards and inquiries having declined. Mills report a fairly good demand for stock length material and anticipate improved activity after distributors have concluded inventory-taking. Prices are firm at 2.25c, Pittsburgh, for cut lengths and 2.00c for stock lengths. No change in current price levels is regarded as likely for first quarter.

Buffalo, Nov. 27.—Close to 800 tons of reinforcing bar inquiry is outstanding in this district. Not much additional tonnage has so far appeared for next month. Prices hold firm with small lots delivered at jobs bringing 2.615c, Buffalo. Mills are op-

Awards Compared

	Tons
Awards this week	5,067
Awards last week	3,370
Awards two weeks ago	2,150
Awards this week, 1927	6,111
Average weekly awards, Nov.	4,532
Average weekly awards, 1928	6,611
Total awards to date, 1927	271,900
Total awards to date, 1928	310,734

erating at rates in proportion to demand.

Cleveland, Nov. 27.—Action is deferred on most concrete bar projects. Many involve less than 100 tons apiece, although the lakefront terminal development at East Fifty-fourth street by the Nicholson Universal Terminal Co., Detroit, will probably require 1000 or more tons. It now is in the preliminary stages. The board of education closes bids on two schools Dec. 17 and has more school work pending.

CONTRACTS PLACED

1800 tons, Life Science building, Berkeley, Calif., to Pacific Coast Steel Co.
800 tons, Lakeside hospital group, to Bourne-Fuller Co., through John Gill & Sons, general contractors. Noted last week as 500 tons.
660 tons, power plant, Amenia, N. Y., to Concrete Steel Co., through M. Kantrawitz, Albany, N. Y.
570 tons (included erroneously in structural steel total last week) including 300 tons, Hotel Stephens, Toledo, O., 150 tons work for Detroit, Toledo & Ironton railroad at Delta, O., and 120 tons, 60 tons each plant for Industrial Casting Co., and building for Knights of Columbus, both at Toledo, to the Building Products Co.
400 tons, service sales building, Studebaker Corp., Twenty-fifth and Federal streets, Chicago., to Inland Steel Co.
300 tons, new Renton plant of Puget Sound Power & Light Co., to Pacific Coast Steel Co.
300 tons, plant building, Stewart-Warner Speedometer Corp., Chicago, in addition to 300 tons previously reported, to Barton Spider Web System, Inc.
225 tons, apartments, Woodstock, Ill., to Truscon Steel Co.
185 tons, Evander Childs high school, New York, to Tidewater Structural Materials Corp.
127 tons, paving in San Luis Obispo county, Calif. Bars to unstated interest.
100 tons, Veterans hospital, Walla Walla, Wash. to unstated interest.
100 tons, paving on Third avenue, south Seattle, to Northwest Steel Rolling Mills.

CONTRACTS PENDING

2000 tons, four junior high schools, Chicago: Bids Nov. 26.
400 tons, school, Portland, Ore. Bids received.
300 tons, three elementary schools, Philadelphia.
290 tons, apartment, Hillcrest street, Los Angeles. Bids received.
275 tons, paving work, Imperial county, Calif., Bids Dec. 19.
210 tons, Tacoma avenue state highway bridge; bids Dec. 18.
200 tons, apartment building, Chicago; Nelson Construction Co., general contractor.
200 tons, 100 tons each, Robert Fulton and Louis Agassiz schools, board of education, Cleveland. Bids close Dec. 17.
188 tons, bridge near Benham, Calif. Bids received.
125 tons, addition, Harrison Radiator Co. plant, Lockport, N. Y.; James Tyler, Rochester, N. Y., architect. Bids soon.
103 tons, paving work, San Diego county, Calif. Bids Dec. 12.
100 tons, Bellingham, Wash., plant of Washington Cooperative Egg & Poultry Assn.; Bids in.
100 tons, store building, Milwaukee avenue, Chicago.
100 tons, Langdon school, Washington, general contract to G. G. Loehler Co.
100 tons, Illinois Naval Reserve armory, Chicago.
Tonnage unstated for bridge across Chesapeake bay, general contract to Sanford & Brooks Co.
Unstated tonnage, plant, Puget Sound Power & Light Co., Renton, Wash.
Unstated tonnage, Filtration building, pumping station, reservoir, etc., at Wooster and Denison boulevard, Cleveland. Plans drawn.
Unstated tonnage, public auditorium, Toledo, O. H. Wachter & Associates, architects, drawing plans.

Rails, Cars

Car Awards Grow—Pending List Augmented by 6000 for Santa Fe—Half of Rails Placed

MORE cheer is dispensed to domestic car builders with awards growing and pending inquiry expanding. The latter list includes 6000 for the Santa Fe, swelling the total to above 14,000. Awards involve over 3100 topped by 2000 automobile cars for Wabash. About 50 per cent of 1929 rail requirements has been closed. More inquiries are soon to take definite form.

RAILROAD TRACK PRICES, PAGE 1398

Chicago, Nov. 27.—Estimates by rail mills here are that more than one-half of the expected 1929 rail purchases by western roads and by eastern carriers who place tonnages in this territory has been closed. While 100-pound rails usually are bought western roads are taking many 110 to 130-pound rails. From 30,000 to 40,000 tons of rails are on indefinite inquiry in addition to St. Paul and Chicago & North Western tonnage.

Track fastening orders total about 6000 tons. In addition, Missouri Pacific placed 10,000 tons of tie plates, etc., in the St. Louis district. A portion may be rolled by Chicago mills. About 5000 tons of track fastenings are on inquiry. Several car orders are listed below.

New York, Nov. 27.—With approximately 2500 freight cars closed within the past week and an increasing number under consideration, the car market continues to assume a livelier aspect. Freight car orders so far this month have already substantially exceeded those of October with further buying likely before Dec. 1. The locomotive market, more active than a month ago, is still below expectations.

Pittsburgh, Nov. 27.—Bethlehem Steel Co. has booked 13,000 tons of rails for the Detroit, Toledo & Ironton railroad. Inland Steel Co. has booked the tie plates, and spikes remain to be purchased. The Pere Marquette railroad is expected to buy 18,000 to 20,000 tons of rails soon.

Track accessory demand is slow to improve. With the exception of the current inquiry of the New York Central railroad, large lots are lacking. Coal mines, which were fair buyers of light rails in September and October, evidently have completed their purchases and current business is light.

Wheeling & Lake Erie railroad has placed 2000 tons of rails, and angle bars in proportion, with the Carnegie Steel Co. The Wheeling Steel Corp. will supply the tie plates.

CAR ORDERS PLACED

Armour & Co., 500 steel underframes for stock cars, to Bettendorf Co.
Chicago & North Western, 400 gondolas to Standard Steel Car Co.; eight gasoline-electric rail motor car bodies to Pullman Car & Mfg. Corp., power units to be supplied by Electro-Motive Co., and 100 underframes for caboose cars, to American Car & Foundry Co.; 300 flats to Pressed Steel Car Co.
Chicago Great Western, 300 box cars to Pullman Car & Mfg. Corp. Included in last week's pending list.
Chicago, St. Paul, Minneapolis & Omaha, four gasoline-electric car bodies, to Pullman Car & Mfg. Corp., with power plants to be supplied by Electro-Motive Co.
Chesapeake & Ohio, six gasoline-electric rail motor cars, to J. G. Brill Co.
Colorado & Southern, one gasoline-electric rail motor car, to Pullman Car & Mfg. Corp., with power plant to be supplied by Electro-Motive Co.
Hercules Powder Co., 10 tank cars, to American Car & Foundry Co.
Montour, 10 cabooses, to Standard Steel Car Co.
Montreal Tramway Co., Montreal, Que., 106 cars, to cost $1,500,000, Canadian Car & Foundry Co.
Nevada Consolidated Copper Co., 30 Ingolsby ore cars to Koppel Industrial Car Co., in addition to 20 previously noted.
Northwestern Pacific, five motor cars and five trailers, to St. Louis Car Co. Included in last week's pending list.
St. Louis-Southwestern, 10 steel underframes, to American Car & Foundry Co.
Wabash, 2000 automobile cars, 1500 going to American Car & Foundry Co. and 500 to Pullman Car & Mfg. Corp.

LOCOMOTIVES PLACED

Wheeling & Lake Erie, 10 switch engines, own shops.
Steel Co. of Canada, 300-horsepower unit for converting steam locomotive to gasoline-electric drive.

CAR ORDERS PENDING

Atchison, Topeka & Santa Fe, 6000 freight cars of which the following 4700 are under inquiry: 200 flats, 900 single deck stock; 250 double deck stock; 125 caboose and 3225 in five other types freight cars.
Boston & Maine, 500 70-ton hopper cars, specifications issued; previously noted as contemplated.
Chicago & Eastern Illinois, 200 automobile cars.
Chicago, Rock Island & Pacific, 250 ballast cars and 50 caboose cars.
Chicago & North Western, 200 steel Enterprise type ballast cars, 300 flat and 2000 automobile cars.
Fruit Growers' Express, 200 underframes instead of 50.
Great Northern, 250 gondolas, with alternate on composite cars.
Green Bay & Western, four combination baggage and mail cars.
Louisville & Nashville, 2500 miscellaneous freight-cars as follows: 1200 gondola cars, 750 automobile cars, 300 box cars and 250 gondola cars; this total includes 1450 noted in last week's issue.
Missouri Pacific, 3000 freight cars and 100 underframes.
Northern Pacific, 2000 freight cars.
Seaboard Air Line, 200 steel hopper cars, contemplated.

Strip

First Quarter Contracts Are Being Taken and New Extras Are in Force

WITH prices set for first quarter and new extras and differentials in force contracts for that delivery are being booked. Slight changes in favor of mills result from the revision. Renewed production by automotive interests is increasing specifications. Some concession allowed on quantity orders in competition is the only sign of weakness.

STRIP PRICES, PAGE 1398

Chicago, Nov. 27.—One producer of hot rolled strip steel has opened books for first quarter at 2.10c to 2.30c, Chicago, for strip under 6 inches, and 2.00c, Chicago, for strip 6 to 20 inches wide. While the quotations show little change from fourth quarter prices, the net result is a slight reduction in ordering of certain sizes and quantities and a slight increase in other cases, and should yield $1 to $3 a ton more to the mills on tonnage output. The quantity differentials adopted about a month ago also are effective.

The new quotations eliminate several width classifications on which prices have been based heretofore. The blue annealed sheet price basis for 12 to 24-inch hot rolled strips has been abandoned.

Cold rolled strip prices will continue 2.85c to 2.95c, Cleveland-Pittsburgh, for first quarter, books having been opened for that period by all producers; 2.85c is to apply on certain quantity orders where competition from eastern territory is sharp. Cold rolled strip operations continue at about 80 per cent, but hot rolled mills in this district average only about 70 per cent.

Pittsburgh, Nov. 27.—Producers of strip steel are receiving contracts for first quarter at recently announced prices. Hot strip users will pay 2.00c, Pittsburgh, for sizes under 6-inch and 1.90c for sizes over 6 inches, to 24 inches. The decline in specifications so far this month has been slight and demand from some automotive interests is increasing. Mills look for resumption of buying before Jan. 1. Cold-rolled strip is 2.85c to 2.95c, at which first quarter contracts are being placed.

Cleveland, Nov. 27.—Some progress is reported by hot and cold strip steel sellers in fourth quarter specifications and booking first quarter requirements of automotive and allied industries. Cold strips are 2.85c to 2.95c, Pittsburgh-Cleveland, but because one or two interests can take small lots at the minimum, buyers believe they would go to 2.75c on large tonnages. Hot strip new business carries 1.90c to 2.00c, Pittsburgh, prices. Narrow mills are well filled for the year and some already have reached early 1929 datings.

Detroit, Nov. 27.—Strip steel daily grows more active. As automobile companies start production of new models, requests for expedited shipments of hot and cold strips become more insistent. While some progress has been made on first quarter contracts, larger tonnage users hold off, especially in cold, hoping to obtain lower than 2.85c, Pittsburgh, now quoted. On hot strips 1.80c to 1.90c, Pittsburgh, on 6 1/16-inch to 24 inches wide and 1.90c to 2.00c on 6-inch and under, are quoted.

Wilhelm Konrad Rontgen, a German scientist, discovered the X-rays.

Cold Finished Steel

Specifications Steady and Prices Unchanged for First Quarter

COLD FINISHED PRICES, PAGE 1397

Pittsburgh, Nov. 27.—Little change is noted in specification for cold finished steel. Several automotive producers have completed inventory and are starting production on new models. Their operations serve to offset those who are lessening production. One maker tomorrow will affirm 2.20c for first quarter.

Cleveland, Nov. 27.—Inquiries are growing more numerous for first quarter cold finished bars, and buyers are more insistent that makers express themselves on price. Until hot bar, wire and wire rod prices are known for that period, it is difficult to decide but the probability is that 2.25c, Cleveland will continue. At present it is firm with specifications mounting.

Sixty-one bridges in this country are of the vertical lift type.

Wire

Activity by Manufacturers Holds Market Steady—First Quarter Prices Not Named

PRICES to apply on first quarter wire contracts have not been announced and books are not yet open. Manufacturers' wire continues most in demand and nails are inactive. Jobbers are in better position and have covered retail needs for spring shipment. Indications are that present prices will hold through the turn of the year into first quarter.

WIRE PRICES, PAGE 1398

Pittsburgh, Nov. 27.—Announcement of first quarter prices on steel wire and wire nails still is being deferred. Specifications have shown some decrease, although demand for manufacturers' wire is well maintained for the season. The nail market continues quiet. Wire is 2.40c, nails $2.55.

Worcester, Mass., Nov. 27.—Wire buying is largely confined to current business with little first quarter interest shown. The total volume is ahead of last year and prices are firm at 2.55c, Worcester base, for plain wire. Demand for manufacturer's wire is good and other specialty materials are moving well.

Cleveland, Nov. 24.—Manufacturers' wire is exceptionally active for this season. Nails are in their dull season and tonnage is limited. Prices are fairly firm and now, since jobbers have covered their retail trade for spring shipment, present levels probably will hold into first quarter with plain wire at 2.40c, Cleveland, and nails at $2.55.

Detroit, Nov. 27.—Plain wire shipments into this territory have improved. Chrysler Motor Corp. is among automobile manufacturers now seeking tonnage. It is expected here that 2.40c, Cleveland, on plain wire will be continued. Large purchases of nails were a recent feature. Automobile companies and other large users have been active, despite approaching inventory. The $2.55, Cleveland, nail base is firmer and sellers believe they will do well if they can hold that figure for first quarter.

Chicago, Nov. 27.—Western wire mills have not opened books for first quarter. A good tonnage of manufacturers' wire was placed on the books during the week. Jobbers made some good purchases of woven fencing. Jobbing demand is light and fails to keep pace with buying of manufacturers' wire. Prices are steady at 2.45c, Chicago or western mills, for bright plain wire, and $2.60 for nails.

Relationship between industries and banking, was the subject of a joint meeting of the Providence section of the American Society of Mechanical Engineers and the Providence Engineering society, held at Providence, Nov. 5. The chief speaker was George F. Doriot, associate professor, industrial management, Harvard university, Cambridge, Mass.

Nonferrous Metals

Quotations Are Firm on Strong Demand for Practically All Metals—Sales of Copper Routine—Zinc Picks up

Prices of the Week, Cents a Pound

	Copper: Electro delivered	Copper: Lake delivered	Copper: Casting refinery	Straits Tin: New York Spot	Straits Tin: New York Futures	Lead: New York	Lead: East St. Louis	Zinc: St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Nov. 21	16.00	16.12½	15.60	51.65	51.25	6.35	6.17½	6.25	23.90	10.15	35.00
Nov. 22	16.00	16.12½	15.60	51.25	51.00	6.35	6.17½	6.25	23.90	10.05	35.00
Nov. 23	16.00	16.12½	15.60	52.30	51.80	6.35	6.20	6.25	23.90	10.07½	35.00
Nov. 26	16.00	16.12½	15.60	52.95	52.45	6.35	6.22½	6.35	23.90	10.00	35.00
Nov. 27	16.00	16.12½	15.60	53.00	52.06¼	6.35	6.22½	6.35	23.90	10.00	35.00

NEW YORK, Nov. 27.—Large buying of nonferrous metals in the past week has made practically all prices firm to strong. Zinc, lead and tin are outstanding in this respect. Copper and aluminum continue strong but unchanged with large shipments against old orders.

Buying of zinc, tin and lead has been of good size for several weeks and in the past few days has been especially large. The use of all metals is running at unusually high figures. Copper had its inning in sales during September and October. Now it is the turn of other metals to rise in demand.

Copper—Buying during the past week has been routine. The market has been quiet, but some business has been done every day, mostly for January and February delivery. Some scattered carlots have sold for domestic shipment this year. Some inquiries have appeared for shipment beyond February, but generally producers have not cared to sell so far ahead. Shipments continue to push the refineries to capacity, but there are some indications that after the end of the current year the situation will not be quite so tight, unless there should be further expansion in consumption. Prices have held unchanged.

Zinc—Sales of prime western have been larger in the past week than in a number of months. Sales in October were fair, and after a quiet period began to pick up about the middle of November, with a gradual increase since then, so that in the past few days demand has become unusually insistent. The price of 6.25c, East St. Louis, which had ruled on prompt metal since the beginning of August, and on futures since late in June, began to disappear on Saturday, so that on Monday morning sales were made at 6.30c and soon after that this price disappeared with all sellers going to 6.35c.

Tin—Users of tin have been unusually active in the market during the past week. This buying was reflected in the highest prices that have prevailed since early in the year. For a while almost the entire American market was skeptical about the backing of the higher prices made in London, but as a certain London group has shown far more power than had been thought possible in the face of bearish statistics, the Americans have been scared into covering their future needs. Users have bought much more than dealers, but the latter also have had to buy.

Lead—Buying has been active for prompt to January shipment and the market appears to be in strong position so far as statistics in this country go. The London market, however, has shown little strength, and consequently has limited the extent to which prices here can reflect the buying. The New York price is unchanged at 6.35c. — DAILY METAL TRADE.

Mill Products

Base prices cents per pound f.o.b. mill, except where otherwise specified.

SHEETS	
Yellow brass (high	20.50
Copper, hot rolled	25.00
Lead, full sheets (cut ¼c more)	9.00
Zinc sheet (100-pound base)	$9.75
Zinc strip (100-pound base)	$8.75
Aluminum, flat sheets, up to 10 gage, 8" to 72" wide	31.30
SEAMLESS TUBE	
Yellow brass (high)	25.37½
Copper	26.37½
RODS	
Yellow brass (high, full turnings)	18.25
Naval brass	21.00
WIRE	
Copper, car lots	17.62½
Yellow brass (high)	21.00

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	10.00 to 10.25
Chicago	10.50 to 10.75
Cleveland	11.00 to 11.25
HEAVY YELLOW BRASS	
Cleveland	8.25 to 8.50
ZINC	
New York	3.50
Cleveland	3.25 to 3.50
HEAVY COPPER AND WIRE	
New York	13.00 to 13.25
Boston	12.75 to 13.00
Chicago	12.75 to 13.00
Cleveland	13.00 to 13.25
RED BRASS BORINGS	
New York	9.50 to 9.75
YELLOW BRASS TUBING	
Cleveland	8.25 to 8.50
LIGHT COPPER	
New York	11.25 to 11.50
Chicago	11.00 to 11.25
Cleveland	11.50 to 11.75
LIGHT BRASS	
Boston	6.25 to 6.50
Chicago	7.25 to 7.50
Cleveland	6.50 to 6.75
ALUMINUM	
Clippings, Cleveland	17.75 to 18.00
Borings, Cleveland	9.25 to 9.50
Cast, Cleveland	12.75 to 13.00
Cast, Boston	10.50 to 11.00

Secondary Metals

Remelt aluminum No. 12	16.00 to 16.50
Brass ingot, 85-5-5-5	14.00 to 14.50

Coke By-Products

Lower Prices on Foreign Sulphate Fruitless—Toluol Buying Heavy

New York, Nov. 27.—Foreign prices on sulphate of ammonia are tending downward. Recently as low as $2.25, port, for material in double bags has been quoted, without getting business. Domestic prices are unchanged at $2.30, delivered, but there has been little business.

Heavy buying still features toluol and the benzols. Sellers report buying is fully as heavy as any time this year, with deliveries more complicated. At the same time, however, prices are unchanged. Some leading distributors declare that no further advances in benzols are under contemplation, but others consider an increase before the close of the year probable.

Affected by scarcity in other distillates, particularly toluol, solvent naphtha and commercial xylol are moving briskly, with prices steady. Phenol is in routine demand. Ball and flake naphthalene are moving slowly, reflecting seasonal influences, with the market unchanged.

Coke Oven By-Products

Per Gallon at Producer's Plant in Tank Lots

	Spot
Pure benzol	$0.23
90 per cent benzol	0.23
Toluol (nominal)	0.40
Salvent naphtha	0.30
Commercial xylol	0.30
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.17
Per Pound at Producers' Plants	
Naphthalene flakes	0.05 to 0.06
Naphthalene balls	0.05 to 0.06
Per 100 Pounds Delivered	
Sulphate of ammonia	$2.30

Quicksilver Is Easier

New York, Nov. 27.—Quicksilver is a little easy at $124 a flask. New buying has been light lately and supplies ample.

Warehouse

Seasonal Let-Downs in Some Lines Offset by Increases in Others—November Total Climbing Above November Tonnage Last Year

SOME lines of iron and steel sold by warehouses are meeting with seasonal reverses, following an exceptional busy October. As a month, however, November will compare favorably with November a year ago and in some cases will be exceeded. Pittsburgh notes many sheet sales. Boston and Buffalo note numerous repeat or replacement orders. Cleveland, Detroit and other sections note diversified demand.

Boston.—Individual orders continue the bulwark of warehouse interests. Ordering appears to be extensive in small lots, frequently repeated. Prices show signs of strengthening soon.

Philadelphia.—Jobbers report improved bookings with prices and quantity differentials holding firmly.

New York—Jobbing demand is somewhat slower. Leading sellers report business under the corresponding period last month. The situation, however, is far from dull. Sheet prices have a stronger tone.

Pittsburgh.—Sales gradually are tapering off. Users while departing somewhat from the hand-to-mouth buying policy still hold stocks at a minimum for inventories. Sheets continue most active for diversified uses. Hot-rolled bars and concrete reinforcing bars also move well.

Buffalo—November sales have been considerably above the average. Consumers are using material more rapidly than they had anticipated, judging from frequent repeat orders.

Cleveland, Nov. 27.—Outside of a few seasonal reverses which invariably come after the busy October, jobbers here are experiencing a good selling month. Most believe the total will exceed November a year ago. Demand is diversified and no price changes are contemplated, present quotations being firm.

Detroit.—Whereas October demand centered chiefly in sheets, demand from warehouses this month is more diversified. Aggregate tonnage so far is lower than for a comparable period in October but jobbers are confident the deficit will be made up. Prices are firm and unchanged.

Cincinnati.—A strong warehouse market is noted, with no one product commanding more attention than others. Advancing mill prices on some items have thrown heavier demand in the way of warehouses.

St. Louis.—As mill deliveries improve and weather conditions grow worse, demand has slowed down somewhat, compared with November's first half. Total business for the month, however, will exceed that of the corresponding period in 1927.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles	3.30c
New York †††‡‡	3.25c
Philadelphia*	2.80c
Pittsburgh	2.90c
Portland	2.50c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.04c

IRON BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.50c
New York††	2.80c to 3.24c
Philadelphia*	2.80c
St. Louis	3.15c
Tulsa	3.75c to 4.04c

REINFORCING BARS

Baltimore	3.31c
Boston	3.265c to 3.50c
Buffalo	2.75c
Cincinnati	3.15c
Cleveland	2.25c to 3.00c
Detroit	2.30c to 3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles cl.	2.65c
Los Angeles lcl.	3.00c
New York	2.85c to 3.25c
Philadelphia	2.85c
Pittsburgh	2.75c to 3.175c
San Francisco cl.	2.00c
San Francisco lcl.	2.25c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.10c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.00c
Houston	3.25c
Los Angeles	3.30c
New York†††‡‡	3.25c to 3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	2.90c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

PLATES

Baltimore	3.10c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.30c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York‡‡	3.30c
Philadelphia*	2.70c
Phila., 3/16-in.*	2.90c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

NO. 10 BLUE ANNEALED

Baltimore	3.45c
Boston, 3/16-in.	3.915c
Buffalo	3.50c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Ft. Worth	4.50c
Houston	3.90c
Los Angeles	4.00c
New York‡‡	3.90c
Portland	3.75c
Philadelphia*†	3.15c
Pittsburgh**	3.00c to 3.10c
San Francisco	3.90c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.75c
Tulsa	4.20c to 4.54c

NO 24 BLACK SHEETS

Baltimore	3.10c to 4.00c
Boston	4.85c
Buffalo	4.20c
Chicago	3.80c
Cincinnati	3.90c
Cleveland	3.50c
Detroit	3.95c
Ft. Worth	4.70c
Los Angeles	4.90c
New York†††	3.70c to 3.80c
Philadelphia*†	4.00c
Pittsburgh‡	3.55c to 3.80c
Portland	4.90c
San Francisco	4.95c
Seattle	5.00c
St. Louis	4.10c
St. Paul	3.95c
Tulsa	4.34c

NO. 24 GALVANIZED SHEETS

Baltimore	4.10c to 4.75c
Boston	5.60c
Buffalo	4.70c to 4.85c
Chicago	4.65c
Cincinnati	4.75c
Cleveland	4.35c
Detroit	4.75c
Ft. Worth	5.50c
Houston	5.30c
Los Angeles	5.30c
New York†††	4.25c to 4.50c
Philadelphia*†	4.75c
Pittsburgh‡	4.40c to 4.55c
Portland	5.50c
San Francisco	5.40c
Seattle	5.50c
St. Louis	4.95c
St. Paul	4.90c
Tulsa	6.50c

BANDS

Baltimore	3.85c
Boston	4.015c to 5.00c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.65c
Ft. Worth	4.25c
Houston	3.65c
Los Angeles	4.15c
New York‡‡	4.00c
Philadelphia*	3.35c
Pittsburgh	3.60c
Portland	3.75c
San Francisco	4.10c
Seattle	4.00c
St. Paul	3.90c
Tulsa	4.50c to 4.66c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	4.15c
Cincinnati	4.25c
Cleveland	3.65c
Detroit	4.15c
New York‡‡	4.50c
Philadelphia*	3.60c
Pittsburgh	4.50c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds, hexagons,	Flats, squares
Baltimore (c)	3.35c	3.85c
Boston	3.55c	4.05c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	.....
New York	3.50c	4.00c
Philadelphia*	3.45c	3.95c
Pittsburgh	3.60c	4.10c
Portland (a)	4.75c	.....
San Fran. (a)	4.25c	.....
Seattle (a)	5.00c	.....
St. Paul (a)	3.85c	.....
Tulsa	4.76c	5.26c

(a) Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500 pound lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia (c)	5.00c

(b) Net base, straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	13.80c
Iron bars, rounds	6.10c
Iron bars, flats and squares	6.50c

*Plus quantity differentials. ‡‡Minus quantity differentials. ††Domestic bars. ‡10 to 24 bundles. **25 or more sheets. *†50 or more bundles. †††Newark-Jersey City 4.00c on black and 4.70c on galvanized the more prevalent figures.

Pacific Coast

Structurals and Plates Lead in Coast Buying—Pipe Also Is Active—Plants Expand

PLACING of 1800 tons of concrete bars and an equal tonnage of plates for oil tank work marks the past week on the Pacific coast. Except in plates the aggregate bookings for this year to date exceed all of 1927. French cast iron pipe is being taken in preference to domestic on account of price. Steel plants are expanding to meet demands for production.

San Francisco, Nov. 24.—(*By Air Mail*)—Except for structural material, demand for iron and steel products on the Coast this week has fallen off and many believe that little real business will be booked until after Jan. 1. However, the aggregate so far this year, plates excluded, exceeds the total booked for all 1927.

Bars, Plates and Shapes

Awards of concrete bars this week were the heaviest in over two months and totaled 2805 tons, bringing the aggregate for the year to 80,007 tons, compared with 55,342 tons for the corresponding period in 1927. The Pacific Coast Steel Co. took the largest award of the week, 1800 tons for the life science building at Berkeley. Among the larger inquiries were 400 tons for a school at Portland, Oreg., and 276 tons for highway work in Imperial county, Calif. Approximately 525 tons are still pending in the Bernal cut project at San Francisco and an award is expected to be made next week. Importations of foreign reinforcing steel bars have practically ceased on the Coast, but despite this fact, out-of-stock quotations in Los Angeles and San Francisco continue weak at 1.80c, base.

Piate awards this week totaled 1800 tons and brought the aggregate for the year to 45,432 tons, compared with 62,466 tons for the same period last year. The Shell Oil Co., San Francisco, awarded three 82,000-barrel tanks to the Western Pipe & Steel Co. and three to the Steel Tank & Pipe Co., each company getting 900 tons.

The structural shape market was the most active one this week and over 6400 tons was placed. So far this year 135,670 tons has been booked compared with 126,893 tons for the corresponding period in 1927. Among larger lots were 1600 tons for an apartment in Los Angeles, taken by the Union Iron Works, 1500 tons for bridges for the Southern Pacific Co., San Francisco, placed with the American Bridge Co. and 425 tons for a saw mill at Longview, Wash., obtained by the Star Iron & Steel Works. While no new inquiries of importance came up during the week, pending business approximates 10,000 tons. Plain material from domestic mills is firm at 2.35c c.i.f.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	24.00 to 25.00

*C.i.f. duty paid.

Good Sales at Seattle

Seattle, Nov. 27.—Enlargement of facilities at two local fabricating plants indicates confidence in future conditions in the iron and steel business of the Pacific Northwest. Announcement was made this week that extended improvements will be made by the Wallace Bridge & Structural Steel Co. and the Isaacson Iron Works. This follows closely acquisition by the Pacific Coast Steel Co. of additional space adjacent to its local plant, to prepare for future expansion.

Isaacson Iron Works, 2917 East Marginal way, is about to erect an addition to the present plant, 70 x 240 feet, which will require about 200 tons of steel which the plant will fabricate for its own use. The Isaacson facilities are also being increased by the construction of two crane runways, each 300 feet in length, involving 60 tons of steel. Two electric cranes, 5 and 10 ton capacity, with 60-foot span, have been purchased. The Isaacson plant specializes in high grade forgings and shafts, and general structural work.

Plans for expansion of the Wallace plant have not been completed but enlargement is necessary because of the firm's contract to fabricate the approximately 12,000 tons of steel involved in the Longview bridge, to be furnished by the Bethlehem Steel Co.

Bars, Plates and Shapes

Mill prices are steady, concrete bars at 2.20c, plates at 2.25c and merchant bars and structurals at 2.35c.

Pacific Coast Steel Co. has booked 300 tons of reinforcing materials for the new Renton plant of the Puget Sound Power & Light Co. Business pending includes 100 tons for the Bellingham plant of the Washington Co-operative Egg & Poultry association and 400 tons for a public school building at Portland, Oreg. State highway commission will open bids Dec. 18 for a bridge at Tacoma, Wash., requiring 210 tons.

The largest structural tonnage pending involves 800 tons for the steam plant at Renton of the Puget Sound Power & Light Co., bids for which will be opened Nov. 24. Chas. G. Huber, Portland, has the contract for the Morse creek bridge, in Yakima county, involving 100 tons of shapes. The Austin Co. has been given the contract to plan and design the hangars and other structures at Seattle's municipal airport, involving an unstated tonnage of structurals.

Good Pipe Orders Booked

Local contractors have placed with the Pacific Water Works Supply Co. orders for approximately 1550 tons of cast iron pipe, which will come from French plants, for use in water main renewals and extensions in Seattle. The largest contract involves 1050 tons for the Denny Hill regrade project for which S. A. Moceri has the general contract. L. Coluccio, general contractor, has placed with the same interest an order for 300 tons for the East Olive street improvement. For the East Prospect street project, the same contractor has bought from the same supplier 200 tons.

Ludlum-Atlas Merger Is Explained

New York, Nov. 27.—H. G. Batcheller, vice president of Ludlum Steel Co., Watervliet, N. Y., said today:

"Special meetings of the stockholders of both companies have been called to vote on a consolidation of the Atlas Steel Corp., Dunkirk, N. Y., with the Ludlum Steel Co. If favorable, some plan of financing will be arranged that will retire all the present securities of both companies standing ahead of the common stocks. The method has not yet been determined.

"The reasons for the consolidation are that the normal growth in the tool steel business of the Ludlum company, together with the very rapid increase in demand for nitralloy and silchrome valve steel, and for our present grades of stainless steel, necessitates increased capacity for these special steels and also to meet the expected demand for the new series of chrome nickel steels which we are now beginning to manufacture under our license agreement with Krupp Nirosta Co.

"In addition, our directors have voted in favor of still further expansion of facilities, first of which will be to erect a complete plant for the manufacture of tungsten carbide, tools and dies under combined patents of the Krupp Nirosta Co., and General Electric Co. Construction will begin immediately and the plant design is based upon the specifications supplied by Prof. Dr. Benno Strauss of the Krupp research laboratory, who is spending several weeks with us and whose experience in the manufacture of this material has come from the production of 200,000 tools sold through Europe.

"Our directors have also authorized the construction of a plant for drawing chrome nickel and other highly alloyed steel wire by a German process for which Ludlum company has acquired exclusive American rights. Orders are already placed in Germany for 30 special wire drawing machines, together with the necessary annealing apparatus."

Extras on Semifinished Steel Revised

Following is a new standard classification of extras on semifinished steel which producers have put into effect:

Extras for Size

Blooms, Billets and Slabs

All extras are given in dollars per gross ton. Extras are applicable only to acceptable sizes in the chemical limits specified.

Squares under 4 x 4 to 1½ x 1½ inches, inclusive, or rectangular sections of equivalent areas not less than 3 inches thick	$ 1.00
4 x 4 inches to under 10 x 10 inches or equivalent area	No extra
10 x 10 inches to under 14 x 14 inches or equivalent area	2.00
14 x 14 inches to under 16 x 16 inches or equivalent area	4.00
16 x 16 inches to under 20 x 20 inches or equivalent area	6.00
20 x 20 inches and over or equivalent area	8.00
Weight per piece when ordered 12,000 pounds or over (This shall not apply when product or ingot is accepted.)	10.00

Extras for Chemical Specifications

Blooms, Billets, Slabs and Sheet Bars

Bessemer and Open-hearth Steel

The means of the range agreed upon between the purchaser and manufacturer shall determine the extra.

Carbon

Open-hearth, Bessemer,	0.10 to 0.25	No extra
	0.08 to 0.25	No extra
	0.26 to 0.60	$1.00
	0.61 to 1.25	3.00
When maximum specified is:		
Open-hearth,	0.09	$1.00
Bessemer,	0.07	1.00

Manganese

0.30 to 0.90	No extra
0.91 to 1.15	$2.00
1.16 to 1.35	4.00
1.36 to 1.50	5.00

NOTE: For manganese content above a mean of 1.15 the above extras apply only to steel with maximum carbon specified 0.20 or higher.

Phosphorus

Minimum not specified	No extra
0.04 min. to 0.08 min.	$1.00

NOTE: Phosphorus extra applies to open-hearth steel only. Phosphorus extra does not apply to sheet bars.

Sulphur

Minimum not specified	No extra
0.07 min. to 0.10 min.	$2.00

Silicon

Minimum not specified	No extra
0.10 to 0.25	$2.00
0.26 to 0.50	4.00

Copper

Minimum not specified	No extra
Up to 0.20 minimum	$3.00

Standard Ranges

The following ranges of elements are standard; the maximum of ranges specified to govern:

Carbon

Up to 0.25, inclusive	5 points
0.26 to 0.65, inclusive	10 points
0.66 to 1.05, inclusive	15 points
1.06 and over	20 points

Manganese

Up to 0.70, inclusive	20 points
0.71 to 1.50, inclusive	30 points

Silicon

Up to 0.20, inclusive	10 points
0.21 to 0.30, inclusive	15 points
0.31 to 0.50, inclusive	20 points

NOTE: Specifications calling for closer ranges than indicated above can only be adhered to at an extra cost unless a combination of orders is so arranged that all steel coming within the standard ranges can be applied.

Republic Raising Funds for Expansion

Youngstown, O., Nov. 27.—Providing about $6,500,000 of new money for company expansion purposes, the Republic Iron & Steel Co. through its board of directors has authorized the sale of about 100,000 shares of common stock. It has increased the membership of its board to 14 and is about to start upon a program of modernization of works equipment that also may include new construction in the Birmingham, Ala., district, where it has three modern blast furnaces and additional works sites.

The financing plan announced by the directors through President E. T. McCleary provides that stockholders as of Dec. 15 may subscribe for one share of the new issue for every six shares of the old stock, and at $65 a share.

Three new directors have been added to the board, these being William G. Mather, of the Cleveland-Cliffs Iron Co., and Myron A. Wick, manager of the Steel & Tubes division, both of Cleveland; and Philip Wick, a large stockholder through the Trumbull Steel and Steel & Tubes recent acquisitions by the Republic company.

The entire board of the Republic company now is composed as follows: President E. T. McCleary, vice presidents Harry L. Rownd and H. T. Gilbert, John T. Harrington and Philip Wick, all of Youngstown; Cyrus S. Eaton and E. Green, representing the Eaton interests, George Humphries and H. M. Hanna, representing the Hanna interests, Myron A. Wick and William G. Mather, all six of Cleveland; H. W. Croft and J. Brooks, representing the Mellon interests, of Pittsburgh; and Chairman John A. Topping, representing the former ownership, of New York.

Pig Iron Market Is Quieter

(*Concluded from Page* 1399)

son county has advanced its prices $1 a ton on all grades, while another has announced an increase of $2 a ton.

Philadelphia, Nov. 27.—Pig iron demand has improved, with good size bookings of foundry iron in the past week, in small and moderate size tonnages. Baldwin Locomotive Works is inquiring for 1000 to 1500 tons of iron. A Baltimore consumer is reported to have bought 4000 to 5000 tons of foundry iron. Demand for low phosphorus iron is better. Standard Steel Works Co., Burnham, Pa., is inquiring for several thousand tons of this grade, and several other consumers are expected to buy tonnages soon. Prices are steady.

Cincinnati, Nov. 27.—Following an advance of $2 a ton on all grades of silvery and bessemer ferrosilicon iron by one of the Jackson county producers, the other maker has increased its prices $1. The reason for this spread is not yet quite clear. It is understood about 4500 tons of silvery iron was purchased during the past week. The inquiry from an Indianapolis buyer for 3000 tons of foundry iron was closed with a northern furnace. It is reported that a Piqua, O., stove and range manufacturer contracted with a valley furnace for 1000 tons. An Indiana manufacturer placed 1500 to 2000 tons with a northern furnace. A representative of a southern furnace reports additional sales of 1100 tons in central Indiana, Ohio and northern Kentucky.

Detroit, Nov. 27.—Pig iron specifications are heavy. No large inquiries are pending because practically everybody has been protected. The market is strong and trending higher. Some small sales recently were made at $20.50, base, Detroit furnace, 50 cents higher than the previous high mark. Shipments on lower price contracts taken during the summer will be completed during December.

Chicago, Nov. 27.—Furnaces are heavily booked for first quarter, the majority of melters having covered for that period. Sales during the past week were nearly 25,000 tons. A cargo of about 2000 tons of malleable and off-grade basic iron was received at Milwaukee from a Cleveland furnace, 1000 tons of which was sold in Milwaukee and the remainder being offered here at $19.25, base, Chicago. This iron is having no effect on the $20 Chicago base price, which remains strong. November shipments were close to those of October.

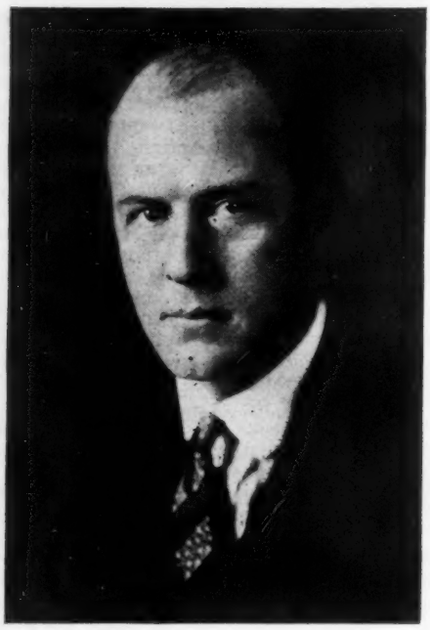
St. Louis, Nov. 27.—Opening of books by southern blast furnaces for fourth quarter stimulated business. Numerous melters who favor the southern product entered the market. Sales of southern iron were the largest in a long time, totaling above 6000 tons, and bringing up the aggregate for all producers in the past week to about 15,500 tons. The St. Louis Gas & Coke Corp. booked 8500 tons, including 6000 tons of basic. Stove foundries placed about 2400 tons. Malleable and job plants have increased their melt. Shipments by the stovemakers are exceeding expectations, and are ahead of the same time last year. Machinery and engine builders and the implement interests report an active demand. Southern furnaces are asking $16.50, base, Birmingham, for first quarter, which figures $20.02, delivered, St. Louis. This price is bettered by combined river and rail relivery. The leading local producer's price is unchanged at $20 f.o.b. Granite City for No. 2 foundry, and $20.50 for malleable. Chicago iron is $20, base, furnace.

Birmingham, Ala., Nov. 27.—Many small sales of pig iron are reported for delivery during the next 30 days. A few round tonnages have been booked for first quarter, but heavy selling has not started. While another advance in price is intimated, orders are being accepted at $16.50, base, Birmingham. Production is steady. A few hundred tons of southern foundry iron has been sold for delivery in St. Louis and Chicago territory. Local consumption has eased off.

Toronto, Ont., Nov. 27.—Merchant pig iron sales continue to expand. Demand for foundry and malleable iron has been stimulated by large railroad business. Some inquiries are out for first quarter. Producers believe prices will be higher before books are opened for 1929 contracts. Current prices are steady.

Industrial Men in the Day's News

Col. T. S. Hammond, New President, National Founders' Association



SUCCESSIVE promotions given him in recognition of his ability took him from the purchasing agent's job to the president's chair in his company—the Whiting Corp.

ALWAYS active in trade association effort because he recognized its value, he has served in directorates, vice presidencies as well as presidencies, now achieving the office of president of the National Founders' association.

IN A MILITARY way he also has risen, being a colonel in the 124th field artillery, Thirty-third division. Many years ago he was a regular member of the Illinois national guard.

TRADE association work has always played an important part in the industrial life and career of Col. Thomas S. Hammond, president and general manager of the Whiting Corp., Harvey, Ill., builder of cranes, foundry equipment, railway specialties, etc., who on Nov. 22 was elected president of the National Founders' association at its thirty-second annual convention at the Hotel Astor, New York. Colonel Hammond succeeds William H. Barr.

Colonel Hammond for many years has served the National Founders' association as director, member of its executive committee and in other capacities. Other trade associations have likewise received his active support, either in an executive capacity or as a worker on their committees. He was president of the Foundry Equipment Manufacturers' association in 1925 and has also served as director of that body. He likewise was elected in 1923 for a three-year term as director of the American Foundrymen's association. He now is president of the Chicago branch of the National Metal Trades association, serves on the executive board of the Chicago association of commerce and is a director of the Illinois chamber of commerce. It may be that his rise from purchasing agent to president of the Whiting Corp. in 18 years has been expedited by the broadened outlook gained in these outside activities.

Colonel Hammond was born at Crown Point, N. Y., Oct. 29, 1884. He received his higher education at Hyde Park high school, Chicago, and at the University of Michigan, from which he was graduated in 1906. He was one of the greatest football players in Michigan's history, and a member of one of Coach Yost's most famous teams. At one time he was president of the University of Michigan Association of Chicago and president of the "M" club of that city.

After leaving college he in 1907 entered the employ of the Whiting Foundry Equipment Co. (the Whiting Corp.'s predecessor) at Harvey, Ill., as purchasing agent. He later was made assistant secretary, then vice president and secretary, and early in December, 1925, he was made president and treasurer to succeed J. H. Whiting, who had been elected chairman of the board. Colonel Hammond also is vice president of the National Engineering Co., Swenson Evaporator Co., Grindle Fuel Equipment Co. and the Joseph Harrington Co.

As a member of the Illinois national guard for many years he gave much of his time to military pursuits, and at the time of the Mexican difficulty in 1916 he served on the border, so that when the World war broke out he was prepared. He spent 18 months in France with the 149th field artillery, 33rd division. At present he is a colonel of the 124th field artillery of that division.

Men of the Industry

FRANK J. BAUMIS, who recently resigned as president of the Shaw Crane-Putnam Machine Co. Inc., and as vice president and director of Manning, Maxwell & Moore Inc., New York, becomes identified Dec. 1, with the Ingersoll-Rand Co., New York, in connection with that company's development of the oil-electric locomotive, A detailed biographical sketch of Mr. Baumis appeared in IRON TRADE REVIEW, June 2, 1927.

* * *

H. N. Felton, branch manager of the Milwaukee office of the Wagner Electric Corp., St. Louis, has been made branch manager of the New York office.

* * *

Robert P. King, since 1916 works engineer at the Springfield, Mass., plant of the Westinghouse Electric & Mfg. Co., on Dec. 1 becomes identified with the Dupont Rayon Co., Buffalo.

* * *

A. W. Evans, 3285 Waltham avenue, Dormont, Pa., has been appointed Pittsburgh representative of the Torrington Mfg. Co., Torrington, Conn., designer and builder of special machinery.

* * *

K. K. McGarvey, for three years secretary of the engineering department of the AC Spark Plug Co., Flint, Mich., has been appointed to the equipment sales engineering staff with headquarters at Detroit.

* * *

Lewis S. Bowman, Indiana state auditor, on Dec. 1 becomes secretary of the Perfect Circle Co., Hagerstown, Ind., manufacturer of piston rings at Hagerstown, Newcastle and Tipton, Ind.

* * *

R. M. Sandberg has been appointed general manager of the Columbia Tool Steel Co., Chicago Heights, Ill., after a 16-year affiliation. Mr. Sandberg in recent years has been active in the American Society for Steel Treating.

* * *

Herbert W. Stone, vice president and general manager of the United States Hoffman Machinery Corp., Syracuse, N. Y., has been promoted to the presidency to succeed the late Eugene D. Stocker.

* * *

B. J. Steelman, for a number of years associated with the Wanner Malleable Castings Co., Hammond, Ind., has been appointed manager of the Kalamazoo, Mich., branch of the Wagner Malleable Iron Co., Decatur, Ill.

* * *

Lucien Eaton, superintendent of the Ishpeming, Mich., district of the Cleveland-Cliffs Iron Co., Cleveland, has been appointed chairman of the metal mining branch of the standardization division of the American Mining congress.

* * *

Col. I. C. Moller, of the Universal Crane Co., Cleveland, has been named

ALFRED C. HOWELL
Whose election as vice president of the Guaranty Trust Co., New York, was noted in the Nov. 22 issue of IRON TRADE REVIEW

honorary president of the National Highway Traffic association. This organization was formed in 1918 to promote efficiency and regulation of highway traffic and transport.

* * *

T. E. Davis was elected president of the Caldbeck Tool & Mfg. Co., Des Moines, Iowa, to succeed the late Wendell H. Caldbeck. R. J. Bennett has been elected vice president and general manager, Edith Caldbeck treasurer, and K. H. Peterson secretary.

* * *

Theodore C. Wilson, 24 Lee street, Cambridge, Mass., has been appointed pig iron representative in the New England territory for the Donner Steel Co. Inc., Buffalo. Mr. Wilson since May, 1924, has been associated with E. Arthur Tutein Inc., Boston and prior to that was affiliated for 12 years with J. O. Henshaw, that city.

Mr. Wilson represents the Donner company only for the sale of pig iron.

* * *

W. H. Meese, assistant manager of the Hawthorne works of the Western Electric Co., at Chicago, has been appointed manager of the company's new plant at Baltimore. G. A. Pennock, superintendent of the inspection branch of the company, has been appointed assistant manager of the Hawthorne works, to succeed Mr. Meese.

* * *

L. S. Shaffer, formerly general manager of the Byers Machine Co., Ravenna, O., builder of excavating equipment, and its president and treasurer since January, 1927 became affiliated with the C. O. Bartlett & Snow Co., effective Nov. 7. He is in charge of sales and developments of the truck body which the Bartlett & Snow company is building for the transportation of pre-mixed concrete.

* * *

Frank V. Hadas, for 20 years with the Ford Motor Co., Detroit, in charge of branch service and later branch manufacturing operations, has been appointed factory manager of the General Motors Truck Corp., Detroit, to succeed H. J. Warner, who becomes assistant to the president. Since resigning from the Ford organization, two years ago, Mr. Hadas has been identified with the airplane industry.

* * *

Barney G. Tang has been promoted from assistant general superintendent of the General Electric Co., Schenectady, N. Y., to general superintendent to succeed the late James A. Smith. John D. Harnden, formerly superintendent of the testing department, has been made assistant to the works manager. F. L. Kemp succeeds him as testing department superintendent. LeRoy Beers has been made plant engineer, a newly-created position under the works manager.

* * *

N. H. Boynton, sales and promotion manager of the National Lamp works of the General Electric Co., Cleveland, has been made president of the Motor and Equipment association of Chicago and the Motor and Accessory Manufacturers' association of New York, which recently pooled their efforts. Headquarters are at New York and Chicago. J. M. McComb, vice president of the Crucible Steel

Co., New York, has been named vice president, division A; W. S. Isherwood, sales manager of the A-C Spark Plug Co., Flint, Mich., vice president division B; C. H. Burr, treasurer of SKF Industries, New York, treasurer; M. B. Ericson, secretary and treasurer, Biflex Corp., Waukegan, Ill.; assistant treasurer; G. L. Brunner, treasurer and general manager of the Brunner Mfg. Co., Utica, N. Y., secretary.

* * *

R. D. Dubbs has succeeded Thomas H. Newell as vice president and general manager of the O. K. Harry Steel Works, St. Louis. Mr. Newell died Sept. 28.

* * *

H. W. Terry, formerly sales manager of the Bayley Blower Co., Milwaukee, has become associated with the industrial advertising division of the Cramer-Krasselt Co., Milwaukee.

* * *

F. J. Tone and George R. Raynor, president and vice president of the Carborundum Co., Niagara Falls, N. Y., respectively, have been elected directors of the Hutto Engineering Co., Detroit.

* * *

H. W. Knapp, formerly Cleveland district manager of sales for the McQuay-Norris Mfg. Co., St. Louis, piston rings, pistons, pins, bearings, bolts and bushings, has been appointed its general sales representative.

* * *

John A. Northwood, director of safety of the Cambria plant of the Bethlehem Steel Co., who has been affiliated with that plant since 1901, is to be transferred to the Sparrows Point, Md., works of the company, Dec. 1, as safety director there.

* * *

Thomas W. Kennedy, president and general manager of the Mystic Iron Works, has been elected a trustee and vice president of the New England Fuel & Transportation Co. and also has been made a director of the New England Coal & Coke Co., as well as its subsidiary interests.

* * *

P. N. Guthrie Jr. has been appointed vice president of the Reading Iron Co., Reading, Pa. The general sales offices of the company will be transferred to 30 Church street, New York. Mr. Guthrie will have charge of sales and H. F. Mattern will continue as general sales manager.

* * *

Paul Forsyth, salesman in the Chicago, Detroit and Cincinnati districts for the Wagner Electric Corp., St. Louis, and at one time with the J. G. White Co., New York, and the Detroit Edison Co., Detroit, has been made branch manager of the Cincinnati office of the Wagner corporation.

* * *

Elmer L. Kyle has been appointed acting division sales manager at Detroit for the Semet-Solvay Co., to succeed James M. Woods. Mr. Woods has been appointed general sales manager with headquarters at Detroit.

* * *

John A. Callahan, aviation engineer, has been appointed manager of the Kail street plant of the Curtiss Aeroplane & Motor Co., Buffalo, to succeed C. Roy Keyes, now vice president. Eight years ago, Mr. Callahan was a manager for the Curtiss company but left to become general manager of the Martin Parry Co.'s plant, York, Pa.

* * *

George R. Johnson has been appointed resident agent of M. A. Hanna & Co. at Pittsburgh, succeeding George Buckwell, resigned. Mr. Johnson has spent a number of years in the pig iron business. He has been attached to the Pittsburgh sales office of the company for some time following a number of years of furnace practice at Leetonia, O.

* * *

F. T. Coup, who has been in charge of the Cincinnati office of the Wagner Electric Corp., St. Louis, has been transferred to Milwaukee to serve as branch manager. After graduating from the University of Wisconsin in 1912, Mr. Coup became affiliated with the Wagner organization, one year at the home office, two years as salesman at Boston, four at Milwaukee, and finally in 1921 was made branch manager at Cincinnati.

* * *

O. Needham, formerly section engineer in charge of steel mill engineering for the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has been appointed assistant superintendent of the testing department of the East Pittsburgh works. Mr. Needham, a member of the American Institute of Electrical Engineers and Association of Iron and Steel Electrical Engineers, is a graduate of the Oklahoma Agricultural and Mechanical college and has been with the Westinghouse company since 1919.

William B. Shirk, a member of the same association as Mr. Needham and with the Westinghouse company since 1925, succeeds Mr. Needham. Mr. Shirk formerly was assistant superintendent of electrical equipment for the Bethlehem Steel Co. Since going with the Westinghouse company he has been identified with many important industrial electrification projects, including that of the American Sheet & Tin Plate Co. at Gary, Ind.

Obituaries

BRECKENRIDGE JONES, chairman of the board, Mississippi Valley Trust Co., St. Louis, died recently in that city after a long illness. Mr. Jones was one of the founders and original directors of the St. Louis Coke & Iron Co., now the St. Louis Gas & Coke Corp.

* * *

Frank W. Meegan, 66, president of the Hydraulic Engineering Corp., New York, died Nov. 25.

* * *

James T. Milner, 65, president of the Standard Car Truck Co., Chicago, died Nov. 19, at his winter home in Coral Gables, Fla.

* * *

Stephen A. Dustin, 77, who claimed to be the originator of the present blueprinting system, died Nov. 22, at Batavia, N. Y.

* * *

Edward Staats Luther, 52, president of the Industries Development Corp., New York, died Nov. 18, after a brief illness.

* * *

John G. Way, 55, for 20 years general manager of the New Process Stove Co. and a director of the American Stove Co., Cleveland, died Nov. 19 in that city.

* * *

Thomas F. Ryan, financial and industrial leader, who died in New York, Nov. 23, at the age of 77, at one time was a large stockholder in the Bethlehem Steel Corp. In 1921 he organized the Belgian-American Coke Ovens Co.

* * *

George W. Atterbury, who in 1903 founded the Atterbury Motor Car Co., Buffalo, died recently on a ranch near Woodland, Calif., after a lengthy illness. He was president of the company until he retired several years ago.

* * *

John A. Snyder, 69, at one time with the Phoenix Bridge Construction Co., and for 35 years general construction superintendent on the western division of the New York Central railroad, died at Lockport, N. Y., Nov. 21.

* * *

Walton H. Meagley, 50, assistant sales manager of the Corbin Screw Co., New Britain, Conn., died Nov. 11, at his home in Berlin, Conn. He was born in Berlin, N. Y., and had been associated with the New Britain company for more than a quarter century.

Lockout Spreads in Ruhr Area

Other German Steelworks Operating Full Time—Belgians Receive Good Orders for Finished Steel From Far East and South Africa—Markets Continue To Improve in Some Districts in Great Britain—Shipbuilding More Active

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, Nov. 27.—(*By Radio*)—The lockout of the Ruhr steelworkers is spreading to allied trades, according to a report from Berlin. A legal decision has been handed down against the employers who now are appealing to the supreme court. Meanwhile, negotiations are continuing for a settlement of the disagreement.

Steelworks in various other districts of Germany are working full time. A report from Brussels says the Ruhr lockout is not much of a factor in the Belgian market. Competition is being felt from British pig iron producers. Good demand for finished steel is coming from the Far East and South America. While trade in France is quieter, prices remain firm.

The pig iron market at Middlesbrough is improving, and Dorman, Long & Co. are lighting another blast. Demand for hematite justifies an increase of 1 shilling a ton. Shipbuilding requirements on the Tees are expanding. Sheffield steelworks are busier. In the Barrow district the pig iron outlook is brighter, though the steel market is dull. Trade in Scotland is quiet, and one furnace has been blown out.

The market for British galvanized sheets is active. Tin plate prices may be advanced if the price of tin continues to rise. Good orders for boilers have been placed for shipment to New South Wales.

German Lockout Confuses European Situation

BERLIN, Nov. 14.—(*European Staff Service*)—Although the trade unions have declared themselves ready to accept the arbitrator's award concerning the dispute in the Ruhr iron and steel industry, the employers have rejected this award and have decided on a lockout, which became effective Nov. 3, when the blast furnaces and steel plants in the Rhenish-Westphalian districts were made idle. This means that about 213,000 workers now are unemployed, and each day the loss in production tonnage amounts to about 32,000 tons of pig iron and 45,000 tons of raw steel. The arbitrator's award provided for an increase in wages of about 3 to 4 per cent, which would work out as an increase on the payrolls of the iron and steel producers and consuming industries of about 17,000,000 marks ($4,050,000) a year.

The producers claim the recommendations of the arbitrator would force the price of raw steel up by 2 to 2.50 marks (47c to 59c) per ton, and they add that the industry could not support such an increase. It is stated, furthermore, that such an advance would be still less acceptable at the present time, when domestic business is trending downward. Notwithstanding these declarations of the steel producers, the minister of labor has declared the award binding, and the trade unions have filed suit against the employers for damages, claiming that the lockout is a violation of the wage agreement which has become effective by the minister's decision.

Under the present circumstances, Ruhr producers are not inclined to accept orders for export, but in Ham-

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Nov. 26	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON	£ s d		£ s d		£ s d		£ s d	
Foundry No. 3, Silicon 2.50-3.00	$16.01	3 6 0*	$15.28	3 3 0	$15.28	3 3 0	$15.76	3 5 0
Basic	15.76	3 5 0	15.28	3 3 0	15.28	3 3 0	15.28	3 3 0
Basic-bessemer	16.98	3 10 0†	14.79	3 1 0	14.79	3 1 0	14.55	3 0 0
Hematite, Phosphorus 0.02-0.05	17.22	3 11 0	26.39	675*	.....	.....	16.98	3 10 0
SEMIFINISHED STEEL								
Billets	$30.92	6 7 6	$24.73	5 2 0	$24.73	5 2 0	$24.25	5 0 0
Wire rods	37.83	8 12 6	29.71	6 2 6	29.71	6 2 6	29.71	6 2 6
FINISHED STEEL								
Standard rails	$37.59	7 15 0	$31.53	6 10 0	$31.53	6 10 0	$31.53	6 10 0
Merchant bars	1.68c	7 15 0	1.36c	6 3 6	1.36c	6 3 6	1.36c	6 5 0
Structural shapes	1.60c	7 7 6	1.12c	5 2 0	1.12c	5 2 0	1.12c	5 2 0
Plates, ship, bridge and tank	1.76c	8 2 6	1.40c	6 7 6	1.40c	6 7 6	1.41c	6 8 0
Sheets, black, 24 gage	2.17c	10 0 0	2.26c	10 5 0	2.26c	10 5 0	2.48c	11 5 0
Sheets, galvanized, 24 gage, corrugated	2.93c	13 10 0	3.01c	13 13 9	3.01c	13 13 9	3.41c	15 10 0
Bands and strips	2.17c	10 0 0	1.38c	6 5 0	1.38c	6 5 0	1.49c	6 15 0
Plain wire, base	2.12c	9 15 0	1.65c	7 10 0	1.65c	7 10 0	1.71c	7 15 0
Galvanized wire, base	2.93c	13 10 0	2.15c	9 15 0	2.15c	9 15 0	2.15c	9 15 0
Wire nails, base	2.38c	11 0 0	1.76c	8 0 0	1.76c	8 0 0	1.76c	8 0 0
Tin plate, base box 108 pounds	$ 4.43	0 18 3	.....	.....	.....	.....	$ 6.79	1 8 0

*Francs

Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$16.01	3 6 0	$17.60	450(2)	$16.54	595	$18.59	78
Basic pig iron	15.76	3 5 0	18.96	485(1)	16.54	595	20.98	88
Furnace coke	3.15	0 13 0	5.87	150	5.14	185	5.13	21.50
Billets	30.92	6 7 6	23.07	590	27.38	985	28.84	121
Standard rails	1.79c	8 5 0	1.46c	810	1.63c	1,250	1.51c	140
Merchant bars	1.68c	7 15 0	1.31c	730	1.40c	1,080	1.52c	141
Shapes	1.71c	7 17 6	1.22c	675	1.24c	950	1.49c	138
Plates, ship, bridge and tank	1.87c	8 12 6	1.54c	855	1.47c	1,130	1.71c	158
Sheets, black, 24 gage	2.28c	10 10 0	2.92c	1,620	2.47c	1,900	2.43c	225
Sheets, galvanized 24 gage, corrugated	2.96c	13 12 6	3.50c	1,945	3.89c	2,975	3.78c	350
Plain wire	2.12c	9 15 0	1.94c	1,075	1.30c	1,000	2.48c	230
Bands and Strips	2.17c	10 0 0	1.53c	850	1.56c	1,200	1.77c	164

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 13s 0d ($3.16) f. o. b. Ferromanganese £21 13s 0d ($105.00) delivered Atlantic seaboard, duty-paid. German ferromanganese £15 0s 0d ($72.90) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

burg offerings have been made by the western districts, Upper Silesia, and Czecho-Slovakia, and some business has resulted. However, traders expect a further advance of prices, owing to the withdrawal of the Ruhr steelmakers from the market, although so far prices have not advanced to a great extent. German exports of iron and steel in September were 481,000 metric tons, as against 506,000 tons in August. A drop also has been registered in imports, which amounted to 196,000 metric tons in August and 177,000 tons in September.

The Kloecknerwerke has reduced its dividend from 7 per cent for the year 1926-27 to 6 per cent for the past financial year, owing to the fact that the considerable increase in production did not result in a corresponding increase of profits.

The profit on the turnover for the year was 34,162,445 marks ($8,100,000); this includes 635,769 marks ($155,000) carried forward from the preceding year. After deducting taxes, social charges and financial charges, the gross profit turns out at 14,802,662 marks ($3,500,000). After having written off over 8,000,000 marks for amortization, the net profit was 6,457,535 marks ($1,550,000), as against 7,232,129 marks ($1,700,000) for the preceding year. The dividend was brought down from 7 to 6 per cent.

The report states that during the year 1927-28 the conditions in the iron and steel industry were satisfactory as regards production. The company has closed down one of its works and concentrated at two other works, thus cutting down production costs. Production of pig iron during the year under review amounted to 777,172 metric tons, compared with 681,330 tons in the preceding year. The output of raw steel was 885,431 metric tons, against 795,898 tons. The output of coal totaled 4,282,525 metric tons, compared with 4,602,399 tons, and the production of coke was 1,387,530 tons, against 1,207,674 tons. However, while production costs were being cut down, further rationalization substantially increased, owing to the higher wages paid and to the effects of the 8-hour day. The conditions of the coal trade were not satisfactory. These factors explain the decrease in profits. During recent weeks, new installations for the production of liquid ammonia and mixed fertilizers have been started and up to now have given satisfaction.

German Trade Falls Off

Berlin, Nov. 10.—(*European Staff Service*)—Exports of German steel, including scrap, in September were slightly under August, when the highest mark for the year was reached. Among the principal items exported in September were 108,416 tons of bars, shapes, hoops and bands; 41,323 tons of wire rod and wire; 40,419 tons of plates and sheets; 38,992 tons of forged tubes; 37,046 tons of semifinished steel; 33,530 tons of rails, sleepers and track fastenings; 15,719 tons of forgings.

Imports of steel products, including scrap, in September were also below August. Among the principal items imported in September were 68,562 tons of bars, shapes, hoops and bands; 19,148 tons of semifinished steel. Imports of scrap were 18,681 metric tons. During the month imports of pig iron and ferroalloys amounted to 26,443 metric tons, as compared with 35,994 tons in August. The following table gives comparisons in metric tons:

	IMPORTS		EXPORTS	
Mon. ave.	Pig iron	Other iron and steel	Pig iron	Other iron and steel
1925	17,190	103,525	18,540	277,190
1926	9,230	95,890	42,730	402,905
1927	23,895	217,505	29,910	347,645
1928				
Jan.	27,493	234,899	13,879	349,147
Feb.	23,086	217,238	21,579	369,197
March	19,068	229,267	26,488	408,310
April	27,113	219,298	19,583	393,227
May	26,742	159,708	18,445	380,025
June	31,422	145,783	20,628	432,603
July	29,765	153,005	23,557	442,528
August	35,994	160,069	30,320	475,537
Sept.	26,443	150,068	30,301	450,346

French Coke Total Down

Paris, Nov. 10.—(*European Staff Service*)—Production of coke at French collieries in September was less than in August. Imports of coke into France were also less than in August. The principal countries of origin were: Germany, 312,674 tons; Belgium, 67,528 tons,; Holland, 44,999 tons; Great Britain, 142 tons. Exports of coke were to: Italy, 27,098 tons; Switzerland, 10,477 tons, followed by Yugoslavia, Belgium and Luxemburg, Spain and other countries. The following table gives comparisons in metric tons:

Mon. ave.	Production	Imports	Exports
1913	335,620	255,835	17,085
1925	255,410	416,880	39,440
1926	313,950	462,915	39,320
1927	339,015	395,580	33,430
1928			
Jan.	357,475	473,018	25,840
Feb.	343,186	411,455	23,119
Mar.	369,360	445,656	15,324
Apr.	360,446	482,575	22,689
May	367,725	526,593	12,366
June	360,141	489,144	30,507
July	370,259	427,291	42,342
Aug.	363,579	445,299	47,243
Sept.	354,411	425,073	44,240

French Ore Output High

Paris, Nov. 10.—(*European Staff Service*)—Output of iron ore in France in September was slightly under the highest mark, reached in August. The following table gives comparisons in metric tons:

Mon. ave.	Production	Stocks at end of month
1913	1,826,500	.....
1925	2,943,204	.....
1926	3,269,033	.....
1927	3,723,200	.....
1928		
Jan.	4,122,386	2,668,569
Feb.	3,889,642	2,627,592
March	4,208,746	2,624,395
April	3,698,631	2,358,372
May	3,973,447	2,380,444
June	4,200,792	2,319,649
July	4,080,816	2,281,943
Aug.	4,282,029	2,371,454
Sept.	4,093,044	2,379,936

Czech Output Gains

Washington, Nov. 27.—The Czechoslovak iron and steel industry continued its activity during August, according to the department of commerce. Production of pig iron and raw steel materially increased, reports Assistant Trade Commissioner Karl L. Rankin, Prague.

Estimated August output of pig iron reached 140,000 metric tons, against 129,000 tons in July, while 169,000 tons of raw steel were poured, against 155,000 tons. The addition of these tonnages to the production already accomplished in the preceding months brought the 1928 output of pig iron to 1,044,000 tons in contrast to 824,000 tons in 1927, the cumulative production of raw steel in the later year being 1,253,000 tons, against 990,000 tons in the earlier.

Luxemburg Output Less

Brussels, Nov. 10.—(*European Staff Service*)—Output of pig iron in Luxemburg in September fell off slightly from August, and included 228,477 tons of basic, 2880 tons of foundry, and 15 tons of forge pig iron.

Output of steel in September was below the highest mark reached to date, in August. It included 206,950 tons of basic bessemer, 1526 tons of open hearth, and 687 tons of electric steel. The following table gives comparisons in metric tons:

Mon. ave.	Pig iron	Steel ingots and castings
1913	212,320	111,355
1925	196,940	173,855
1926	209,295	186,930
1927	226,115	205,850
1928		
Jan.	229,602	212,939
Feb.	220,114	205,053
March	240,234	220,309
April	226,983	202,586
May	233,806	214,756
June	230,484	214,925
July	224,807	207,687
August	233,521	224,182
Sept.	231,372	209,163

German Pig Iron Slumps

Berlin, Nov. 10.—(*European Staff Service*)—September output of pig iron in Germany was the lowest recorded since February, 1927. The September output was composed of 633,799 tons of basic bessemer, 192,128 tons of ferroalloys, 82,434 tons of foundry, 71,503 tons of hematite, 2185 tons of acid bessemer, 1976 tons of direct castings, and 1388 tons of gray forge.

The September output of steel ingots and castings was composed of 1,167,756 tons of ingots and 21,765 tons of castings, the ingot production being composed of 590,809 tons of basic open hearth, 554,314 tons of basic bessemer, 10,583 tons of crucible and electric, 8009 tons of acid open-hearth steel, and 4041 tons of ingot iron.

The following table gives comparisons in metric tons:

Mon. ave.	Furnaces on 31st	Pig iron	Steel ingots and castings	Finished steel
*1913	.....	909,640	993,640	970,240
1925	† 83	848,060	1,016,210	853,340
1926	†109	803,625	1,028,470	856,340
1927	†116	1,091,875	1,358,780	1,069,990
1928				
Jan.	116	1,180,239	1,469,455	.....
Feb.	115	1,122,384	1,322,695	1,040,575
Mar.	113	1,170,476	1,421,524	1,145,070
April	107	1,045,468	1,161,405	917,673
May	104	1,044,046	1,247,781	986,459
June	103	1,021,350	1,294,583	1,067,646
July	100	1,034,694	1,311,134	1,026,333
Aug.	99	1,030,837	1,329,345	1,061,799
Sept.	99	985,413	1,189,521	940,797

*In present boundaries.
†On last day of year.

Export, Import Trade Good

October Partly Makes Up For Previous Month's Losses—Shipments Total 256,870 Tons With 30 Classifications Showing Gains, Led by Shapes—Imports Are 63,880 Tons, an Increase of 10.5 Per Cent—Canada Again Is Best Market

OCTOBER foreign trade of the United States in iron and steel products was more satisfactory than September, according to data supplied by the iron and steel division of the department of commerce. Substantial advances were made in exports and imports in October after both classes had dropped considerably the previous month.

Following the 60,000-ton drop in September to 228,056 tons, exports rebounded to 256,870 tons in October, an increase of 12.6 per cent. The average daily export movement was 8293 tons, decidedly above that of September. The increase in exports was strongly reflected by the trade as a whole, with 30 instances of increased shipments against nine losses. Among the 30 making gains, structural shapes exports increased 12,470 tons and boiler tube and welded pipe 7948 tons. Other classifications making notable gains included plates and sheets, 5467 tons; ingots, 4826 tons; and steel bars, 4499 tons. Scrap shipments were reduced 19,098 tons in October, the greatest decrease. Steel rails declined 7119 tons.

Imports in October totaled 63,880 tons against 57,782 tons in September, making a gain of 10.5 per cent. The increase was evenly divided among the various classifications, 13 items showing gains with one item losing tonnage.

Notable among the classifications gaining were scrap, up 4211 tons; pig iron, 3671 tons; and cast iron pipe, 3060 tons. Steel bars had the outstanding decrease of 2599 tons, while shapes declined 1677 tons.

Even though the gains made by October export trade were not sufficient to overcome the large loss registered in September, the cumulative total for 1928 continued to advance over the 1927 figure. At the end of the 10-month period of 1928 the total was 29.8 per cent greater than the corresponding period of 1927. The total of imports over this same period was greater than that of 1927 by 0.9 per cent.

Canada easily was the principal purchaser of American iron and steel products in October with a total of 113,008 tons of all classes of products. Of this tonnage, shapes were represented by 23,015 tons, skelp by 16,234 tons and plates by 13,068 tons.

Japanese receipts were 47,894 tons, of which 25,650 tons was scrap and 8222 tons was pig iron. Argentina was the third market and received tin plate, barbed wire and casing and oil line pipe principally. Barbed wire also figured prominently in the Brazilian trade, together with galvanized sheets.

Belgium was displaced as leader in the import trade for October by United Kingdom, which shipped 12,140 tons to the United States. This was largely due to increased shipments of pig iron, totaling in October 7702 tons. Germany was second in supplying the United States with iron and steel products, sending

IMPORTS AND EXPORTS

Gross Tons

	—1928—		—1927—	
	Imports	Exports	Imports	Exports
Jan.	58,635	205,766	63,404	215,235
Feb.	47,628	185,915	49,451	166,128
March	74,128	221,935	61,872	171,094
April	71,579	215,184	60,374	192,339
May	72,106	267,890	79,814	202,708
June	65,819	262,052	69,017	184,364
July	47,830	253,336	61,112	190,502
Aug.	69,914	287,297	68,386	175,636
Sept.	57,782	228,056	58,464	166,352
Oct.	63,880	256,870	52,503	170,255
(10 mos.)	629,301	2,384,301	623,922	1,836,730
Nov.	.....	.....	61,882	177,928
Dec.	.....	.....	64,188	168,428
Total	.....	.....	750,467	2,180,969

ORIGIN OF PIG IRON IMPORTS

Gross Tons

From:	Oct.	Sept.
Belgium	20	.....
France	30	.....
Netherlands	896	4,159
Norway	280	263
Sweden	377	.....
United Kingdom	7,702	2,225
Canada	162	.....
British India	4,610	3,758
Mexico	31	32
Totals	14,108	10,437

ORIGIN OF IRON ORE IMPORTS

Gross Tons

From:	Oct.	Sept.
Germany	1,037	.....
Spain	7,557	5,461
United Kingdom	5,807	10
Canada	.....	167
Cuba	.....	31,000
Chile	91,000	130,000
Algeria and Tunis	41,500	27,525
Newfoundland	.....	10,030
Dutch W. Indies	11,500	.....
Brazil	9,000	.....
Japan	6	.....
Australia	2,500	6,501
Totals	169,902	211,494

ORIGIN OF MANGANESE IMPORTS

Gross Tons

From:	Oct.	Sept.
Germany	16	.....
Soviet Russia in Europe	12,600	.....
Canada	41	18
Brazil	6,469	2,162
Chile	632	.....
British India	6,273	3,780
Turkey in Europe	.....	4,232
British W. Africa	.....	4,768
Totals	26,031	14,960

ORIGIN OF FERROMANGANESE IMPORTS (Concentrates)

Gross Tons

From:	Oct.	Sept.
France	21	35
Norway	1,760	3,092
United Kingdom	420	462
Canada	1,653	1,047
Italy	185	24
Totals	4,039	4,660

ORIGIN OF IMPORTS

Gross Tons

From:	Steel bars	Cast iron pipe	Steel scrap	Ingots, blooms, etc.
Belgium	1,217	352	6	754
France	575	3,481	.....	759
Germany	2,105	1	102	46
Sweden	731	.....	.....	424
United Kingdom	56	.....	3,020	14
Canada	6	4	6,678	1
Austria	48	.....	.....	.....
Czechoslovakia	17	.....	.....	.....
Norway	4	.....	.....	.....
Italy	....	.....	132	.....
Netherlands	....	.....	.....	7
Totals	4,759	3,838	9,938	2,005

IMPORTS OF IRON AND STEEL

Gross Tons

Item:	Oct. 1928	Sept. 1928	January through October 1928	1927
Pig iron	14,108	10,437	118,885	102,127
Ferromanganese and alloys (1)	4,039	4,660	38,716	23,220
Ferrosilicon (2)	155	123	3,118	6,657
Ferrochrome (3)	65	79	635	415
Scrap	9,938	5,727	47,588	50,343
Iron slabs	....	....	4	91
Steel ingots, blooms, billets, etc.	2,005	2,193	18,619	10,568
Steel bars	4,759	7,358	75,691	77,727
Iron bars	67	161	1,680	3,174
Wire rods	948	1,076	13,078	14,103
Hoops, bands and scrolls	1,794	1,944	17,337	29,643
Boiler and other plate	2,091	606	6,759	3,250
Sheets, skelp and saw plate	782	2,347	20,694	13,161
Tin plate	48	34	865	1,050
Structural shapes	10,530	12,207	141,699	132,840
Rails and splice bars	1,057	891	14,039	15,161
Cast iron pipe	3,838	778	51,152	74,610
Other pipe and tubes	4,796	3,084	36,309	45,504
Barbed wire	572	762	3,693	3,734
Round iron and steel wire	606	378	3,826	3,373
Steel telegraph and telephone wire	5	....	183	32
Flat wire and strip steel	222	217	1,957	2,261
Wire rope and strand	117	98	1,372	1,921
Other wire	50	78	501	1,109
Nails, tacks and staples	1,089	1,365	8,211	5,155
Bolts, nuts, rivets and washers	46	16	222	311
Castings and forgings	153	163	2,468	2,382
Total	63,880	57,782	629,301	623,922

(1) Manganese content
(2) Silicon content
(3) Chromium content

11,985 tons, of which 3069 tons was shapes, 2966 tons pipe and 2105 tons steel bars. Belgium was forced to third place with 10,731 tons.

EXPORTS OF IRON AND STEEL
In Gross Tons

Item:	Oct. 1928	Sept. 1928	January through October 1928	January through October 1927
Pig iron, not including ferro-alloys	11,532	10,228	64,091	39,823
Ferromanganese and spiegeleisen	143	1,253	8,435	1,539
Scrap	39,413	58,511	462,700	201,055
Ingots, blooms, skelp, etc	21,885	17,059	128,294	80,644
Iron bars	136	453	3,058	3,626
Steel bars	16,264	11,785	125,233	92,501
Alloy steel bars	1,211	1,282	12,318	4,827
Wire rods	3,425	2,824	31,986	14,060
Plates	16,456	10,989	126,018	112,394
Galvanized sheets	13,046	8,701	125,745	132,149
Black steel sheets	14,258	12,038	154,626	134,730
Black iron sheets	1,741	1,285	13,166	13,681
Hoops, bands and strip steel	5,433	4,249	47,488	36,273
Tin plate, terne-plate, etc	18,180	16,471	203,652	219,913
Structural shapes, plain material	25,847	13,377	157,939	120,020
Structural materials, fabricated	7,413	4,272	74,851	55,336
Metal lath	445	543	4,452	3,864
Steel rails	9,347	16,466	170,477	151,146
Rail fastenings, switches, frogs, etc	2,330	1,518	36,590	27,079
Boiler tubes and welded pipe	24,004	16,056	208,514	213,515
Malleable iron screwed pipe fittings	927	935	9,683	8,257
Cast iron screwed pipe fittings	640	355	5,350	5,810
Cast iron pressure pipe and fittings	260	450	8,595	10,047
Cast iron soil pipe and fittings	1,924	1,397	13,974	7,768
Plain wire	4,380	3,069	38,282	29,071
Barbed wire and woven wire fencing	7,397	4,634	61,494	43,844
Wire cloth and screening	107	101	1,505	1,955
Wire rope	445	376	4,294	3,669
Insulated wire and cable	68	26	493	433
Other wire and manufactures of	1,451	1,113	8,839	8,078
Wire nails	968	791	12,696	6,685
Nails, other than wire	841	421	7,590	7,060
Tacks	45	39	612	763
Horseshoes	35	34	375	470
Bolts, nuts, rivets, except track	1,117	916	10,833	10,053
Car wheels and axles	752	2,345	13,159	14,941
Iron castings	675	545	9,025	9,402
Steel castings	651	379	7,874	6,080
Forgings	1,678	770	9,795	4,169
Total	256,870	228,056	2,384,301	1,836,730

DESTINATION OF EXPORTS
Gross Tons

County of destination:	October 1928	January through October 1928	January through October 1927
N. and Cent. America and W. Indies	136,092	1,162,990	915,592
Canada and Newfoundland	113,103	970,391	700,486
Cuba	6,246	53,508	82,342
Mexico	6,354	67,494	68,980
Guatemala	342	6,760	5,639
Panama	2,011	13,660	16,268
Salvador	254	2,899	3,578
British W. Indies	615	6,535	10,908
Other W. Indies	6,200	28,985	16,927
Oth. Cent. America	967	12,758	10,464
South America	38,353	361,578	290,666
Argentina	10,126	82,285	68,266
Brazil	9,239	69,792	57,630
Chile	3,903	56,674	35,603
Colombia	4,967	54,035	48,214
Peru	3,244	22,393	28,372
Uruguay	606	7,368	9,290
Venezuela	5,907	64,893	40,558
Other S. America	361	4,138	2,733
Europe	13,330	247,783	177,642

DESTINATION OF OCTOBER IRON AND STEEL EXPORTS
Gross Tons

	Rails	Galvanized sheets	Plates not fabricated	Tin terne plate	Steel sheets	Barbed wire	Steel bars	Steel scrap
Argentina	616	314	116	2,129	.....	1,339	.....	.....
Australia	....	42	4	.....	186	40	104	.....
Belgium	201	.....	.....	.....	.....	.....	.....	.....
Brazil	1,343	2,582	7	1,281	.....	2,168	223	243
British India	....	16	.....	.....	.....	.....	.....	.....
British S. Africa	....	106	.....	.....	.....	64	.....	.....
Canada	1,832	1,927	12,972	2,319	7,429	336	11,133	11,741
Central America	....	478	15	.....	.....	250	355	.....
Chile	756	41	.....	627	.....	.....	220	.....
China	....	126	.....	2,788	.....	.....	92	1,101
Colombia	1	887	31	198	.....	651	232	.....
Cuba	983	541	92	190	.....	512	221	.....
Dutch E. Indies	....	1,136	.....	.....	.....	.....	.....	.....
Dutch W. Indies	84	.....	.....	.....	.....	.....	.....	.....
Europe	....	.....	23	.....	67	.....	63	.....
Other Europe	....	819	.....	271	.....	.....	.....	.....
France	....	.....	.....	.....	503	.....	.....	.....
Guatemala	....	.....	.....	.....	.....	.....	.....	.....
Hong Kong	.....	.....	.....	.....	.....	.....	.....	3
Italy	....	.....	.....	682	1,375	.....	.....	25
Japan	472	123	.....	4,176	2,940	.....	957	197
Java and Madura	....	.....	.....	230	.....	.....	.....	25,650
Kwangtung	....	.....	.....	.....	.....	.....	.....	.....
Mexico	682	633	372	673	298	377	57	125
Norway	....	215	.....	.....	.....	.....	.....	156
Panama	413	.....	549	.....	.....	.....	.....	.....
Peru	430	.....	78	1,011	135	.....	104	.....
Philippine Islands	317	.....	1,014	99	74	537	345	.....
United Kingdom	....	.....	.....	.....	108	.....	1,681	20
Uruguay	....	.....	.....	219	.....	.....	.....	152
Venezuela	153	.....	.....	32	.....	306	.....	.....
	9,347	13,046	15,900	18,180	14,258	7,011	16,264	39,413

Belgium	999	13,174	5,120	Czechoslovakia	614	1,870	4,537
France	1,363	5,195	4,218	France	8,251	105,110	113,718
Greece	39	1,946	3,546	Germany	11,985	99,588	113,829
Italy	3,604	85,217	40,019	Italy	317	777	850
Netherlands	109	1,812	11,726	Netherlands	1,153	26,010	24,705
Russia	90	2,697	7,409	Norway	2,060	11,675	7,042
United Kingdom	5,371	44,445	57,929	Sweden	2,570	23,568	17,991
Other Europe	1,755	93,297	47,673	United Kingdom	12,140	78,798	44,175
				Canada	9,725	64,712	60,533
Far East	68,137	600,801	437,882	Mexico	31	482	239
British Malaya	29	5,483	7,479	British India	4,610	42,937	41,860
China	4,965	81,851	44,706	China	3	7	.....
Dutch East Indies	3,657	34,107	31,132	Switzerland	.....	44	.....
India and Ceylon	1,322	19,979	23,328	Japan	.....	80	23
Japan and Chosen	47,894	345,913	227,445	Poland and Danzig	.....	3,731	5,918
Kwangtung	809	13,165	18,722	Denmark	.....	205	151
Philippine Islands	6,498	71,125	51,502	Hungary	.....	141	.....
Australia	1,020	13,263	23,397	Spain	.....	197	30
New Zealand	177	1,978	1,024	Cuba	.....	15	6,143
Other Asia and Far Eastern Markets	1,766	13,937	9,147	Dominican Republic	.....	806	.....
				Ecuador	.....	700	.....
Africa	958	11,149	14,950	Virgin Is. of U. S.	.....	3	31
British S. Africa (Union of)	653	5,055	7,356	Syria	.....	13	.....
Egypt	31	3,456	3,124	New Zealand	.....	2,001	.....
Mozambique	85	1,091	3,575	Morocco	.....	5	.....
Other Africa	189	1,547	895	Panama	.....	381	19
				Jamaica	.....	628	.....
				Other countries	.....	.....	246
				Totals	63,880	629,301	623,922

IMPORTS BY COUNTRIES OF ORIGIN
Gross Tons

	October 1928	January through October 1928	January through October 1927
Austria	50	349	841
Belgium	10,371	162,095	171,051

Iron and steel scrap imports by water for Italy in 1927 totaled 631,684 metric tons.

Exports of Metalworking Machinery
(In number except where otherwise specified)

	October 1928	October 1927	January through October 1928	January through October 1927
Engine lathes	60	77	671	501
Turret lathes	41	12	357	210
Other lathes	87	28	680	347
Vertical boring mills and chucking machinery	4	5	88	93
Thread-cutting and automatic screw machines	62	121	676	739
Knee and column type milling machines	26	35	285	185
Other milling machines	38	44	567	339
Gear-cutting machines	25	31	323	328
Vertical drilling machines	31	35	463	230
Radial drilling machines	10	15	124	79
Other drilling machines	110	73	1,074	1,219
Planers and shapers	18	28	345	331
External cylindrical grinding machines	58	62	782	564
Internal grinding machines	34	48	404	380
Metalworking tool-sharpening machines	66	40	570	596
Other metal-grinding machines, pounds	108,492	164,810	1,394,162	1,038,985
Sheet and plate metalworking machines, pounds	1,924,825	940,792	10,425,117	5,223,685
Forging machinery, pounds	651,283	514,193	3,437,687	3,902,967
Rolling-mill machinery, pounds	536,312	557,128	7,459,708	6,502,606
Foundry and molding equipment, pounds	2,547,840	697,440	12,155,709	5,280,393
Other power-driven metalworking machinery and parts, pounds	1,404,900	.....	8,020,509	.....
Pneumatic portable tools	2,047	1,954	16,534	16,226
Other portable and hand or foot operated metal-working machines and parts, pounds	71,032	43,575	800,300	506,469
Chucks for machine tools	1,942	806	15,947	12,804

Machinery

Airplane Manufacturers Assume Important Position as Buyer of Equipment—Inquiries from All Quarters Are Good—Future Bright

REPORTS from principal machine tool centers in the country indicate that although sales of machinery and shop equipment are substantial the level is below that of October. In the East, Wright Aeronautical Corp. shows evidence of heavy buying in the next few weeks. At the same time, Curtiss Aeroplane & Motor Co. is figuring on considerable new equipment. Thus the airplane manufacturing industry must be considered a dominant factor. In the western territory, additional purchases have been made by tractor builders, and little more is to be expected before Jan. 1. Dealers and tool builders report good inquiries and buying is expected to again become brisk after the holiday season and the start of the new year.

New York, Nov. 27.—Wright Aeronautical Corp., Paterson, N. J., again is becoming active, in the local machine tool market with prospects of heavy buying by this company over the next several weeks. This interest along with that shown by the Curtiss Aeroplane & Motor Co., Buffalo, which is figuring on considerable equipment, stamps the airplane industry as a dominant market factor at present. General industrial demand, nevertheless, is brisk and includes further inquiries from General Electric Co., Schenectady, N. Y., and R. Hoe & Co., this city. Notwithstanding slightly better inquiry, electric overhead crane buying continues profoundly dull. Interest in short-boom shovel cranes feature an otherwise listless locomotive crane market. Machine tool orders recently booked by Pratt & Whitney Co. include two thread millers, two jog borers, one vertical shaper, one lathe and one deep hole drill. Niles Tool Works has booked two 48-inch car wheel borers for railroad account.

Pittsburgh, Nov. 27.—Despite the fact that machinery business so far this month has fallen below the fairly active rate of October, sellers believe that the current inquiry indicates a good activity after the first of the year. The present quietness in awards is regarded as seasonal and there still is a fairly good demand for some tools. The greater portion of equipment on the fourth quarter list of the Westinghouse Electric & Mfg. Co. has not as yet been placed. Crane buying continues quiet.

Worcester, Mass., Nov. 27.—Practically all machine tool makers are now busy with the outlook for the remainder of the year bright. Orders for individual lists of tools continue to increase and production schedules are more active, several companies starting extra night shifts. November promises to be one of the best months in a long period and pending business in sight indicates the final quarter of the year will be well in advance of recent years. A feature is the widespread demand, especially production and precision units. The price situation is also inclined to firmness and a better profit is being realized on much of the new machinery being drawn. Grinding machinery has taken another spurt. The radio and automotive field is taking a good number of such machines. Textiles are picking up steadily. Small tools are in brisk demand. Used machinery of latest and more standard makes is also slightly more active, but the price situation is inclined to weakness. A large list of metalworking tools went at auction this week and included some splendid equipment at unusually low prices.

Chicago, Nov. 27.—Inquiries for machine tools are in good volume, but sales during the week fell off in most heavier lines. Contemplated programs are promising, and indications are that a good volume of buying will develop after the beginning of the year. Additional sales of equipment were placed by the tractor plants, and programs for those buyers are becoming well rounded out for the year. Scattered industrial inquiry in the Chicago district is encouraging. Sales of lathes and shapers were light, but specialty equipment and used tools were active. Combination punch and shear machines were fairly active, and numerous orders were taken for small drills. Several sales of friction saws and welding equipment are reported. Some dealers report lighter equipment about normal as to sales, while the decline was most noticeable in heavier lines. Railroad purchases were light. Chicago & North Western bought a milling machine and a heavy duty drill, and Great Northern purchased arc welding equipment. Frank Foundries Corp., Moline, Ill., is inquiring for some tools for its contemplated expansion. Pines Winterfront Co., Chicago, has a program in contemplation for its new plant. A manufacturer of steam hammers has advanced prices 5 to 7 per cent.

Cleveland, Nov. 27.—Sales of equipment continue to be made in this area in volume fully up to the level of October. Equally gratifying is the widespread demand which largely overcomes the smallness in size of individual orders. For many months past the Cleveland territory has fallen behind other industrial territories in volume of business, but since September orders have been equal to or even better than elsewhere. Manufacturers of tools are maintaining night operations and are able to give reasonable shipments. Inquiries although small are numerous and presage an active

CRANE ORDERS PLACED

Two 1-ton transfer-type handpower cranes with connecting runways and an electric hoist for a steel warehouse, New York; to New Jersey Foundry & Machine Co.

Two short-boom shovel cranes for Rosenthal Engineering Co., New York; to Bucyrus Co.

Two short-boom shovel cranes for J. F. Cogan, New York; to Bucyrus Co.

Two electric traveling cranes, including one 5-ton and one 10-ton, for Isaacson Iron Works, Seattle; to H. R. L. Motor Co.

Among single orders were: Gasoline crawler cranes for J. W. Harold & Co., Lynchburg, Va., to Browning Crane Corp.; truck crane for Cordecella & Son, New York, to Browning Crane Corp.; truck crane for Spenser-White Products Co., New York, to Browning Crane Corp.; crawler crane for Clemente Construction Co. Inc., to Forsythe Bros.

CRANE ORDERS PENDING

Short boom crane for Clemente Construction Co. Inc., New York; pending.

Electric crane for American Smelting & Refining Co., New York; reported pending. This was in addition to a charging machine.

To Simplify Pipe Balls

Washington, Nov. 27.—A proposed simplified practice recommendation for pipe balls will be considered at a general conference of manufacturers, distributors and users at the chamber of commerce building, Pittsburgh, Dec. 6. An effort will be made to reduce the number of varieties and sizes of pipe balls so all orders can be filled from stock.

Transmits Order from Sweden by Radio

AN ORDER for ten automatic screw machines recently was received over radio-telephone by the National Acme Co., Windsor, Vt., from a large industrial concern in Sweden. The order was for quick delivery and involved about $100,000; it is said to be one of the largest orders for production machine tools recorded since the war. The instantaneous transatlantic verbal transmission of a complicated order for engineering equipment demonstrates the value of the radio-telephone as a business convenience for the promotion of the machinery trade in European markets. Charles W. Simpson, manager of the Vermont plant, was able to understand every word spoken by Erik Lindholm, manager of the company's Stockholm office. The order was placed through Aktiebolaget Servus, sales representative of the National Acme Co. in Stockholm. The identity of the purchaser was withheld.

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

INDUSTRIAL BROWNHOIST CORP., Cleveland, has bought the complete line of hammers formerly manufactured and sold by the Massillon Foundry & Machine Co., Massillon, O. Production of single and double frame forging hammers, steam drop and board drop hammers, trimming presses and bar shears is now going forward at the Cleveland plant. W. J. Cadman, connected with the Massillon organization for many years, will be in charge of the new hammer department of Industrial Brownhoist at Cleveland.

* * *

DANVILLE STRUCTURAL STEEL CO. LTD., Danville, Pa., has moved its New York office to 11 West Forty-second street.

* * *

BOYE & EMMES MACHINE TOOL CO., Cincinnati, has appointed the Camm-Blades Machinery Co., 610 Michigan street, Milwaukee, its agent for lathes in that territory.

* * *

CONTINENTAL CAN CO., New York, has acquired the Bedford Can Co., Bedford, Va. The Continental Can Co. now has 28 plants throughout the country.

* * *

SMITH & MILLS CO., Cincinnati, has appointed Knickerbocker, Cram & Co. Inc., 7 East Forty-second street, New York, agent for its line of shapers in New York city territory.

* * *

PORTER-CABLE MACHINE CO., Syracuse, N. Y., has appointed Knickerbocker, Cram & Co., 7 East Forty-second street, New York, its agent on production and toolroom lathes in the New York territory.

* * *

PULASKI IRON & METAL CO., Houston, Tex., is the new name adopted by L. Pulaski, dealer in scrap iron and metals. The firm has moved to its new warehouse and offices at 2307 Leeland avenue, in a structure 80 x 100 feet, fireproof construction.

* * *

REYNOLDS SPRING CO., Jackson, Mich., has bought the business of the National Appliance Co., Linden, Mich., and will move it to Jackson. A line of interior and exterior floodlights will be manufactured. J. L. Brownell, formerly president of the National Appliance Co., will be vice president in charge of engineering of the Reynolds Spring Co.

* * *

THERMAL UNIT CO. of Pennsylvania has changed its name to Erie Heating Systems Inc. The company is located at Erie, Pa. W. L. Mack is president, W. A. Curtze treasurer, and A. W. Curtze secretary.

* * *

GOTFREDSON TRUCK CORP., Cleveland, has reopened its body-building plant after 18 months idleness, with a contract that will occupy part of its capacity. The body plant of the Briggs Mfg. Co. at Cleveland also has been reopened after being closed for some time.

* * *

STUDEBAKER CORP., South Bend, Ind., will remove several departments from Detroit to South Bend early in 1929. This will include engineering and manufacturing offices, service and spare parts departments. These additions will bring the payroll at South Bend to 16,000 persons.

* * *

UNIT CORP. OF AMERICA, Milwaukee, has taken a contract from the Willys-Overland Co., Toledo, O., for four-speed transmissions of special design for a 1-ton truck. The order, which totals close to $2,500,000 will be executed by the Fuller division at Kalamazoo, Mich.

* * *

WAGNER ELECTRIC CORP., St. Louis, has moved its branch office and service station at Los Angeles to 1220 South Hope street, to obtain larger quarters. The removal includes all departments, motor, transformer, fan, service station and hydraulic automobile brake departments.

* * *

CHASE BRASS & COPPER CO., Waterbury, Conn., has bought 60 acres at Cleveland, where its western plant is to be erected. The site adjoins the New York Central and Nickel Plate railroads and Babbitt road. The first unit will be 225 x 1000 feet, one story, with height of walls equal to three stories, sawtooth roof, three aisles 75 feet wide, each served by five and ten-ton traveling cranes. Option has been taken on adjoining land on which to locate industries using products of the Chase company. Plans are being made by the Austin Co., engineer, Cleveland, and construction will be started shortly.

* * *

CHROMIUM ENGINEERING CORP., New York, has completed and placed in operation its plating plant at 132 West Twenty-second street, New York, with facilities for chromium plating articles up to the size of automobile bumpers and shells. Work will be done for manufacturers and jobbing shops not ready to install plating plants of their own. The plant will be operated 24 hours per day.

* * *

GEOMETRIC STAMPING CO., Cleveland, is having plans made for a new plant to afford larger facilities. The first unit will be 250 x 600 feet and will contain 150,000 square feet of floor space. Plans are for further units to bring eventual space to 600,000 square feet. David R. Jones is president, George W. Jones secreatry-treasurer, and Joseph P. Busher vice president and factory manager.

* * *

ITABIRA IRON ORE CO. LTD., Minas Geraes, Brazil, controlled by Percival Farquhar and associates, New York, has obtained a concession from the president of Brazil to export iron ore. A steel plant consuming 150,000 tons of ore annually will be built by a Chicago firm. The Victoria-Minas railroad, with an extension to Itabira and a branch from Colatina to Port Santa Cruz will be constructed, with coal and ore handling equipment at the latter port. It is planned to export 3,000,000 to 5,000,000 tons of ore annually and to import coal. The ore is a hematite with about 67 per cent iron. Itabira peak, a mountain of ore, is estimated to contain 170,000,000 tons.

Lists of importers and consumers of scrap iron and steel in the Genoa, Italy, consular district have been complied by consular clerk Ivan Lavretsky, Genoa.

CONSTRUCTION and ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

BRIDGEPORT, CONN.—American Tube & Stamping Co., 766 Stratford avenue, has let the contract for a 3-story plant, 35 x 100 feet, to T. J. Pardy Construction Co., 1481 Seaview avenue.

WASHINGTON—District of Columbia, P. L. Daugherty, engineer, District building, has rejected all bids for remodeling the power plant in Gallinger hospital, Nineteenth and Massachusetts avenue. (Noted Nov. 8.)

SOUTH BOSTON, MASS.—Terkelsen Machine Co., 826 A street, has rescinded its previous contract for the construction of a 2-story plant. A new contract has been awarded to W. Porter, 62 Grampian Way. (Noted Aug. 16.)

SPRINGFIELD, MASS.—Moore Drop Forging Co., A. H. Chapin president, has awarded the general contract for a 2-story plant addition to Adams & Ruston Construction Co., 1387 Main street.

NEW YORK—The American Smelting & Refining Co. is inquiring for structural steel for a smelter, to be erected at Rosita, Mexico.

NORTH BERGEN, N. J.—F. J. Mullery Iron Works Inc., 574 Twelfth street, West New York, N. J., plans the construction of a 2-story plant, 200 x 200 feet.

BROOKLYN, N. Y.—Bushwick Can Co., 86 Butler street, plans the construction of a 1-story plant. V. A. Lacerenza, 26 Court street, is architect.

BROOKLYN, N. Y.—Pioneer Instrument Co., 754 Lexington avenue, plans the construction of two 3-story additions and alterations to its plant. R. M. Segal, 475 Fifth avenue, is architect.

LAUREL HILLS, N. Y.—Nichols Copper Co. plans the construction of a plant, 58 x 278 feet, at Hobson and Halle avenues.

MASSENA, N. Y.—United States Aluminum Co. will start construction of a new blooming mill and a structural mill. It is expected that they will be in operation by the middle of next summer.

NIAGARA FALLS, N. Y.—National Carbon Co., R. H. Atkinson superintendent, has received bids for the construction of a 1-story plant addition.

AMBRIDGE, PA.—A. M. Byers Co., 235 Water street, Pittsburgh, has awarded the contract for structural steel for a plant to Fort Pitt Bridge Works.

CHESTER, PA.—Ford Motor Co., Detroit, is reported planning to expand its plant here to make it one of the company's largest export bases. Some of the work is said to be nearing completion, notably the laying of railroad tracks on the company's pier.

COATESVILLE, PA.—Work will be started shortly on the erection of a low temperature coal carbonization plant for the International Coal Carbonization Co., a subsidiary of the International Combustion Engineering Corp.

PHILADELPHIA—Ajax Metal Co. will build a machine shop at 1108 Frankford avenue.

PHILADELPHIA—United States Gypsum Co., Fifty-eighth street and Schuylkill river, has awarded the contract for structural steel for a plant to American Bridge Co.

PHILADELPHIA—International Harvester Co. of America, 606 South Michigan avenue, Chicago, plans the construction of a 2-story sales and service building, 110 x 228 feet, at F street and Erie avenue.

PHILADELPHIA—Philadelphia Pipe & Supply Co., 1001 North Seventh street, incorporated recently, advises that it is now enlarging its plant and adding new equipment to cut and thread pipe in all sizes up to 18-inch diameter.

PHILADELPHIA—United States Radiator Corp. will soon start construction of a warehouse and office building to be built at Twenty-second street and Sedgley avenue. Wark Co. has been awarded the general contract for the construction work.

PHILADELPHIA—Williams Motors Inc., 1518 Walnut street, recently incoorporated, advises that it plans to manufacture and assemble motor trucks. Plans are practically complete for the construction of a plant suitable for that purpose.

SCRANTON, PA.—Scranton school district, Administration building, 425 Washington avenue, J. D. Hughes secretary, has awarded the contract for a central boiler plant to R. D. Richardson Construction Co., Cornell building, 129 Washington avenue, Scranton.

TIDIOUTE, PA.—Penn Cutlery & Tool Co. Inc., reecntly incorporated, advises that at present it is in production of pocket cutlery exclusively.

WILKES-BARRE, PA.—Wilkes-Barre school district, 93 North Washington street, has awarded the contract for a 3-story boiler plant to Aston Bros. Construction Co., 450 South river street.

Southern States

PINE BLUFF, ARK.—A contract has been awarded to E. C. Noyse, Pine Bluff, for construction of the third unit at the Seaman-Dunning Corp.'s Nash body plant, which practically will double the capacity of the plant. Ground will be broken immediately and the building completed in the early spring.

WEST PALM BEACH, FLA.—City of West Palm Beach plans to rebuild two high-pressure pumping stations on downtown lake front, damaged in a recent storm.

WEST POINT, MISS.—Mississippi Power

Resale Equipment News

BIDS will be received until Dec. 10 at Fort Ontario, N. Y., for waste material. It includes a small quantity of brass and copper scrap and several tons of iron and steel scrap, with miscellaneous articles.

* * *

Sale of the assets of the American Nipple Mfg. Co., Chicago, by Michael Tauber & Co., auctioneers, including machinery materials and other articles, resulted in the entire assets being sold to the Donahue Steel Co., Chicago, for $6000. The sale has been approved by the court.

* * *

Assets of the Progressive Home Builders, bankrupt, Brookfield, Ill., were sold at auction Nov. 26 by Samuel L. Winternitz & Co. The sale covered woodworking machinery, blower system and motor, ballbearing trucks, cement mixer, hardware, pulleys, shafting and other articles.

Sales Calendar

Dec. 10—Bids received on waste materials at Fort Ontario, N. Y.

Co., Gulfport, Miss., plans the erection of a substation with 110,000-volt high power line.

DALLAS, TEX.—Dallas Power & Light Co. has acquired 40 acres in Trinity River bottoms for future expansion.

DAYTON, TEX.—City of Dayton plans the construction of a waterworks.

DOWLING, TEX.—Texarkana & Fort Smith railroad plans the construction of a terminal here to include machine shop, round house, power house, air compressor, etc.

TEAGUE, TEX.—Plans are under way for improvements and extensions to the waterworks here.

BOYDTON, VA.—City of Boydton plans the construction of a waterworks system.

SNOWDEN, VA.—Rosecliff Development Corp. plans the construction of a hydroelectric plant on the James river, near here. The contract for the construction has been awarded to Reinhart & Dennis Inc., Charlottesville.

East Central

CHICAGO—Illinois Tool Works, 2501 Keeler avenue, has awarded the contract for the construction of a 1-story plant addition to Joseph Haigh & Sons, 140 South Dearborn street.

CHICAGO—Dreis & Krump Mfg. Co., 7400 South Loomis street, has let the general contract for a 2-story plant, 64 x 180 feet, to Stresenreuter Bros., 3020 South Halsted street.

CHICAGO—Commonwealth Edison Co., 72 West Adams street, plans the construction of a 1-story locomotive house. Graham, Anderson, Probst & White, 80 East Jackson boulevard, are architects.

CHICAGO—Battey & Kipp Inc., 231 South LaSalle street, engineers, is the correct name of the company which was incorrectly referred to last week in connection with construction of a manufacturing unit for Walker Mfg. Co. of Racine, Wis.

EAST PEORIA, ILL.—Altorfer Bros. Co., 900 Washington street, H. E. Todd, manager, has awarded the general contract for a 1-story plant addition, 100 x 600 feet, to Fred Harbers & Sons, Central National Bank building, Peoria. The Altorfer company manufactures washing machinery.

JOLIET, ILL.—Joliet Steam Dial Co. has awarded the general contract for a 3-story plant to Kaiser-Ducett, Rialto building, in Joliet.

WOODSTOCK, ILL.—Village of Apple River plans the construction of a water works plant and system. Hepner & Stanley, 23 Stephenson street, are consulting engineers for the municipal project.

ANDERSON, IND.—Victor Wright, manufacturer, of Anderson, has an option on the property of the International Rubber Co., West Twenty-fifth street, with the privilege of occupying the buildings with a manufacturing plant.. He is planning to manufacture a Belgian type of airplane motor.

FRANKLIN, IND.—Diamond Separator Co., N. B. Ritchey, manager, contemplates the construction of a plant addition. Plans are private.

GREENCASTLE, IND.—American Zinc Products Co., C. Martin, contemplates the construction of a plant.

INDIANAPOLIS—Indianapolis Drop Forge Co., 1300 Madison avenue, contemplates the construction of a plant.

INDIANAPOLIS—Aviation Motors Corp., Tenth and Fayette streets, contemplates the construction of a plant addition.

INDIANAPOLIS—Contract for a machine shop and garage for S. Johnson, 3668 Central avenue, has been let to B. Branson, 1502 West Twenty-sixth street.

TERRE HAUTE, IND.—Highland Iron & Steel Co., W .B. Lusher, president, Bridgeport, Conn., contemplates the construction of a plant addition here.

ANN ARBOR, MICH.—Machine Specialty Co., 1200 North Main street, has awarded the general contract for a 2-story machine shop and office to the Austin Co., 16112 Euclid avenue, Cleveland.

DEARBORN, MICH.—Stout Metal Airplanes division of Ford Motor Co., W. A. Stout, president, Oakman boulevard, plans the construction of a plant addition.

DETROIT—Federal Mogul Corp., Shoemaker and Lillibridge streets, has awarded the contract for a 1-story bearings plant addition, 120 x 180 feet, to the Austin Co.

DETROIT—Structural Steel for a building for the Murray Corp., Russell avenue and Aberle street, has been awarded to the Mahon Structural Steel Co. (Noted Nov. 22.)

DETROIT—Kermath Mfg. Co., 5890 Commonwealth, has awarded the general contract for a plant addition for the manufacture of marine engines. J. H. G. Steffens is architect for the construction project.

FERNDALE, MICH.—The contract for structural steel for the building to be erected by Steel & Tubes Inc. has been awarded to the Sterling Structural Steel Co. Cooper-Little Co. has the general contract. (Noted Oct. 11).

HOLLAND, MICH.—Szekeley Air Craft Corp., recently incorporated as previously noted, plans to occupy the building on Eighth street. (Noted Sept. 13.)

HOLLAND, MICH.—Re-Nu Corp., subsidiary of the Borg-Warner Corp., will soon open a plant here for the manufacture of piston rings, locating in an Eighth street plant. The corporation plans the construction of a new plant in the future.

JACKSON, MICH.—Reynolds Spring Co. has has purchased all the machinery, equipment, dies, etc., of the National Appliance Co. Inc., Linden. The trade name and product of the Linden company will be retained.

NORTHVILLE, MICH.—Stinson Aircraft Corp., E. A. Stinson, president, soon will receive bids for its proposed 1-story airplane manufacturing plant. (Noted Oct. 11.)

SAGINAW, MICH.—Wilcox-Rich Corp. has awarded the general contract for a manufacturing plant addition to Federal Construction Co. (Noted Nov. 1.)

ASHLAND, O.—Union Malleable Co., 326 Forest avenue, Cincinnati, A. Katz, president, plans the construction of a 1-story plant addition.

CANTON, O.—Hercules Motor Corp. has awarded the general contract for a 1-story plant, 90 x 180 feet, to A. F. Wendling Co., Massillon, O. (Noted Nov. 22.)

CINCINNATI—Board of county commissioners, C. Brown, president, court house, contemplates the construction of a power plant and foundry building.

CINCINNATI — Columbia Engineering & Management Corp., 314 West Fifth street, is engineer for the central heating plant project, planned by the Union Gas & Electric Co., Fourth and Plum streets.

CLEVELAND—Kelly Reamer Co., 3705 West Seventy-third street, H. C. Putnam, president, plans the construction of a 1-story plant.

CLEVELAND—Atlas Foundry Co., West Sixty-ninth street and Wheeling railroad, has awarded the contract for a 1-story foundry building, 30 x 90 feet, to Bolton-Pratt Construction Co., 7113 Euclid avenue. (Noted Nov. 22.)

CLEVELAND—Precision Castings Co., J. W. Millspaugh, Keith building, plans the construction of a 1-story plant on Berea road to have 30,000 square feet of floor space. The general contract for the work has been let to J. O. Taylor Co., South Saline street, Syracuse, N. Y.

CLEVELAND—Geometric Stamping Co., 221 East 131st street, is making plans for the construction of a new plant to provide for increased production. The company has an option on two tracts in Euclid village. Plans are being made by the Austin Co., 16112 Euclid avenue, for the first unit, to be 250 x 600 feet and to contain 150,000 square feet. Additional plant units are also being planned, to bring the floor space up to 600,000 square feet.

CLEVELAND—Chase Brass & Copper Co., Waterbury, Conn., will have ground broken soon by the Austin Co., 16112 Euclid avenue, for its western plant, to be built on a 60-acre tract here, on Babbitt road, adjoining the New York Central and Nickel Plate railroads. The first unit will be 225 x 1000 feet, 1-story. An option has been taken on land adjoining to locate industries using products of the Chase company. (Noted Nov. 8.)

COLUMBUS, O.—City of Columbus has passed a bond issue for a large airport. The site being considered and which likely will be used is near the Federal Reserve depot, East Broad street. (Noted Oct. 4).

COLUMBUS, O.—Columbus Heating & Ventilating Co., 425 West Town street, G. C. Brown, president, plans the construction of a

3-story plant and office building at 400 Dublin avenue.

DAYTON, O.—Leland Electric Co., North St. Clair street, plans the construction of an office building and boiler room. Ballinger Co., 105 South Twelfth street, is architect.

SPRINGFIELD, O.—Plant facilities and production of the W. F. Robertson Steel & Iron Co., J. W. White, general manager, will be doubled by May 1. Purchaser of the old Kelly-Springfield Bus & Truck Corp. property on Burt street, the Robertson company will have it ready for operation Jan. 1. Other construction will continue about until May 1.

TOLEDO, O.—Industrial Casting Co. has let the contract for structural steel for a building to Building Products Co.

TOLEDO, O.—Standard Electric Stove Co., Twelfth and Smith streets, advises that it will construct a plant next year. Plans are not yet made.

HUNTINGTON, W. VA.—Mott Core Drilling Co., Ninth street and Eighth avenue is building a 2-story warehouse and machine shop, 54 x 60 feet. M. Z. Zinn is constructing engineer.

MANITOWOC, WIS.—The local works of the W. M. Welch Co., manufacturing laboratory furniture and fixtures, will be enlarged early in 1929 by the erection of an addition. R. G. Halverson is local manager.

MANITOWOC, WIS.—An appropriation of $250,000 has been authorized by the common council to the municipal light and power commision for the erection of an addition and purchase of new equipment. F. L. Alter is city engineer.

MILWAUKEE—Following the dissolution of the partnership of William A. Brooks and Hugo Mastaglio, doing business at the Brooks Pattern & Machine Co., it is announced that Mr. Mastaglio will continue the business.

MILWAUKEE—Petoskey Portland Cement Co., Petoskey, Mich., will build a 5-story truck-loading and warehousing plant, 46 x 97 feet, at 232 Eighth avenue, in Milwaukee. The general contract has been given the Burrell Engineering & Construction Co., 513 West Jackson boulevard, Chicago.

NEKOOSA, WIS.—A 1-story shop addition, 30 x 50 feet, will be made to the plant of the Nekoosa Foundry Co. at once.

WATERTOWN, WIS.—Otto Biefeld Co., 202 North Water street, which has taken the contract to manufacture a steam boiler and deconcentrator for the newly organized Henszy De-Concentrator Co., Milwaukee, is letting contracts for the erection of foundry and machine shop additions.

WAUKESHA, WIS.—Bids are being taken until Nov. 30 by the municipal water department for furnishing and installing one 240-horsepower diesel oil engine, direct connected to an alternating current generator. B. B. Hayford is superintendent.

West Central

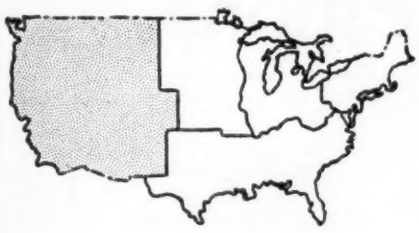
OTTUMWA, IOWA—City of Ottumwa, E. Mitchell, mayor, contemplates the construction of a hydroelectric plant and power house. Brown & Cook, 106 North Market street, are consulting engineers.

MINNEAPOLIS—Russell Grader Mfg. Co. plans the construction of a warehouse, 75 x 330 feet, to be built on Fourth street, adjoining the Northern Pacific railroad tracks.

AURORA, MO.—Ozark Electric Co. suffered damage to its plant, burned in a recent fire.

EDISON, NEBR.—City of Edison plans waterworks improvements, to include wells, pump house, mains, etc.

UNADILLA, NEBR.—Waterworks improvements are planned by the city, K. C. Stoner, clerk, to include wells, pump house, etc.



Western States

INGLEWOOD, CALIF.—J. M. Carpenter and W. H. Anderson plan the construction of an airplane manufacturing plant here and are now selecting a site. Machinery will be moved here from Andiz, Ind., when the plant is completed.

LOS ANGELES—Crane Co., manufacturer of enamelware, plans the construction of six buildings to increase the company's production facilities.

LOS ANGELES—Continental Can Co., 303 San Fernando road, plans to build a 2-story plant, 300 x 600 feet. Francisco & Jacobus, Pershing square building, are architects for the project.

LOS ANGELES—A boiler room will be constructed as part of the development program of the City Towel Supply Co., 413 East Sixth street. The contract for a laundry as well as the boiler room has been awarded to Easton & Nesser, 323 South Western avenue.

COLORADO SPRINGS, COLO.—Imblum Aeronautical Co., 410 West Fourth street, Pueblo, Colo., plans the construction of an airplane manufacturing plant.

SEATTLE—Boeing Airplane Co., 330 West Front street, plans the construction of a plant addition to include a repair shop, hangars, etc.

WOODLAND, WASH.—Northwest Electric Co., Pittock building, Portland, Oreg., plans the construction of a power plant and dam.

Canadian Incorporations

BRANTFORD, ONT.—Radiators & Heaters Ltd. has been incorporated to manufacture and deal in radiators and heaters, with 50,000 shares no par value stock by Alexander L. Shaver, Frederic A. Rogers and Irene C. Brown, all of Dundas, Ont.

HAMILTON, ONT.—Interprovincial Airways Ltd. has been incorporated to manufacture and deal in airplanes, hydroplanes, seaplanes, etc., with 100,000 shares no par value stock by Thomas B. McQuestion, Wilbert G. Welby, all of Hamilton.

MIDLAND, ONT.—Great Lakes Transit Corp. Ltd. has been incorporated to build and operate ships, boats and vessels, with $1,500,000 capital by Edward G. McMillan, Douglas J. Nickle and Ewart R. Lynch, all of Toronto.

TORONTO, ONT.—Advance Products Co. Ltd. has been incorporated to carry on the business as contractor and roofer with $40,000 capital by Frank D. Parmenter, Frederick S. Arntfield and Raymond V. Arntfield all of Toronto.

TORONTO, ONT.—Republic Trucks Ltd. has been incorporated to manufacture and deal in goods, wares and merchandise, with $40,000 capital by Robert B. Reid, John Dolan and Robert L. McIntyre, all of Toronto.

TORONTO, ONT.—Dominion Machinery Supplies Co. Ltd. has been incorporated to manufacture and deal in engines, boiler, power plant equipment, etc., with $50,000 capital by Stuart H. Brown of Trafalgar township, Charles H. A. Armstrong, and John Barnabas of Toronto.

Canada

MEDICINE HAT, ALTA.—City council is making arrangements to purchase new equipment for the power plant here.

DALHOUSIE, N. B.—Town council is considering the installation of additional equipment in the power plant here.

WINNIPEG, MAN.—Hilton Bros. Ltd., 680 Wall street, manufacturer of boiler and pipe coverings, has awarded contract to John Gunn & Sons Ltd., 508 Avenue building, for the erection of a 1-story plant addition to be 75 x 90 feet.

TORONTO, ONT.—British Maid Sales Co. Ltd. has been incorporated to carry on the business as metal maker, manufacturer, founder and engineer, with $10,000 capital and 40,000 shares

no par value stock by Alexander D. Crooks, Alan C. MacRobie and Jean C. Grant, of Toronto.

TORONTO, ONT.—A. R. Williams Machinery Co. will build addition to its plant, and has awarded steel and general contracts to Frankel Bros. Ltd., Eastern avenue, Toronto.

WILLOWDALE, ONT.—Canadian DeHaviland Corp. proposes to erect a plant and hangars here.

YORK TOWNSHIP, ONT.—Excavation work has been started in connection with the building of an office, 32 x 65 feet, and a plant, 92 x 175 feet, here, for the Riley Engineering & Supply Co. Ltd., 360 Dufferin street, Toronto, Ont. Architect is H. G. Duerr, 1010 Lumsden building, Toronto.

GRAND'MERE, QUE.—Fairchild Aviation Co. contemplates building a plant for the manufacture of airplanes, etc. Proposed building will be 1½-stories, 150 x 300 feet.

Recent Incorporations

BOSTON—Paramount Spark Plug Corp. has been incorporated with $25,000 capital to manufacture machinery and mechanical devices by Nathaniel S. Groce, 86 Brainerd road, Boston.

BOSTON—John Livor Inc. has been incorporated with $25,000 capital to manufacture electric specialties, supplies and goods, by John E. Livor, 3 Newport road, Cambridge, Mass.

SOMERVILLE, MASS.—Walter M. Hadley Co. has been incorporated to manufacture pruning shears and to deal in iron, steel and other hardware, by Gorham C. Brackett, Somerville.

WORCESTER, MASS.—Bilt-Rite Oil Burner Inc. has been incorporated with 400 shares no par value stock to manufacture oil and other heaters, by Raymond F. Meader, Whitinsville, Mass.

TRENTON, N. J.—General Pipe & Tube Corp. has been incorporated with $175,000 capital by Ellis L. Pierson, Trenton, attorney.

BROOKLYN, N. Y.—Acme Wire Works has been incorporated with $20,000 capital to manufacture wire fences, by J. Rocca Jr., 2509 Fulton street, attorney.

BUFFALO—Carbo Engineering Corp. has been incorporated with 2000 shares no par value stock to manufacture and deal in combustion apparatus, by Dudley, Stowe & Sawyer, Buffalo.

LITTLE FALLS, N. Y.—Stafford & Holt has been incorporated with $100,000 capital to manufacture and deal in knitting machinery by Bronner & Ward, Little Falls, attorneys.

LYNBROOK, N. Y.—Mugler Steel Products Corp. has been incorporated with $5000 capital by W. F. Fowler, Lynbrook, attorney.

NEW YORK—Queensboro Machine Works has been incorporated with $10,000 capital by E. Gottlieb, 305 Broadway, attorney.

NEW YORK—Vesta Mfg. Corp. has been incorporated with $100,000 capital to manufacture oil burning devices by F. A. Jones, Jackson Heights, attorney.

New Incorporations In Separate Listing

AS NEWS of the incorporation of a concern in the metal-working field is a direct lead to a prospective buyer of various lines of products included in the field of IRON TRADE REVIEW, *notice of such incorporations, as received from various secretaries of state, are being segregated from other news in the Construction and Enterprise department. This makes reference easier for those who regard these leads as more important than others. The arrangement is alphabetical by states.*

NEW YORK—Simplex Piston Ring Co. of Greater New York has been incorporated with $20,000 capital by J. Potts, 188 Montague street, Brooklyn, attorney.

NEW YORK—Cosmic Iron Co., has been incorporated with 200 shares no par value stock to manufacture and deal in metals by J. L. Berman, 225 Broadway, attorney.

CHICAGO—American Carlock Mfg. Co., 3945 West Lake street, has been incorporated with $50,000 capital to manufacture and deal in carlocks, dies, tools, machinery, etc., by Josef Ortner, Theodore Wiggerman and C. F. Clancy.

CHICAGO—Robert Espie Inc., 451 East Ohio street, has been incorporated with $10,000 capital to design, manufacture and deal in ornamental and other metals by Robert Espie, Leon E. Moses and William Wolf.

CHICAGO—Automatic Mfg. Corp., 10 South La Salle street, suite 1650, has been incorporated to manufacture and deal in coin machines, radios, etc., by J. K. Butler, R. J. Sherman and I. B. Freed.

SOUTH BEND, IND.—William H. Sippel Corp. has been incorporated with $20,000 capital to manufacture factory trucks and equipment and do a general machine shop business by William H. Sippel, Florence E. Sippel and David D. Sharp.

CHEBOYGAN, MICH.—Acorn Nut Co. has been incorporated with $150,000 capital to manufacture and deal in nut and bolt machinery by Harvey S. Pruitt, Daniel J. McDonald and Clyde Milliken, all of Cheboygan.

DETROIT—Wolverine Screw Co., 624 St. Jean avenue, has been incorporated with $10,000 capital by F. M. Erbecker.

JACKSON, MICH.—No-Glare Reflector Co. has been incorporated with $20,000 capital to manufacture and deal in automobile accessories by Anton T. Anderson, Arvilla Jones, 504 Lansing avenue, and John W. Jones, Jackson.

LOUISVILLE, KY.—Patented Specialties Co. has been incorporated with $100,000 capital to manufacture and deal in metal and rubber products, by J. D. McDonough.

ASHEVILLE, N. C.—Anderson Tractor & Equipment Co. Inc. has been incorporated with $100,000 capital by A. E. Finley.

ST. LOUIS—Diagraph Stencil Machine Co. has been incorporated by James W. Brigham, Webster Grover and Hilda A. Schleicher, St. Louis.

New Trade Publications

WELDING RODS—Chicago Steel & Wire Co., Chicago, in a current bulletin describes its line of welding rods for various purposes.

CRANES—Frederick H. Poor Inc., New York, has issued a bulletin on its swing crane, mounted on an industrial tractor, illustrated, and with ample data.

ELECTRIC SWITCHES—American Electric Switch Corp., Minerva, O., has issued a catalog of its line of safety switches, meter switches and fuse panels.

AIR FILTER—Midwest Air Filters Inc., Bradford, Pa., has issued a circular illustrating its new type of filter for cleansing air of dust. Diagrams show the method used to attain this end.

AUTOMATIC PUMPING—A publication issued by Barret, Haentjens & Co., Hazleton, Pa., describes a method of making suction lift centrifugal pumps automatic. The matter is treated with technical correctness but with the aim of placing it within the understanding of the non-technical reader and the average mechanic or electrician. Complete diagrams show method of wiring.

INDUSTRIAL MEMPHIS—Chamber of commerce of Memphis, Tenn., has issued a broadside showing the industrial growth of Memphis since Jan. 1, 1927, illustrated with maps and halftones.

LUBRICATION—Another of its series of publications on lubrication has been issued by the Texas Co. It is devoted to materials hoisting equipment and cold weather lubrication. It is uniform with previous issues, in manner of treatment and type of illustrations.

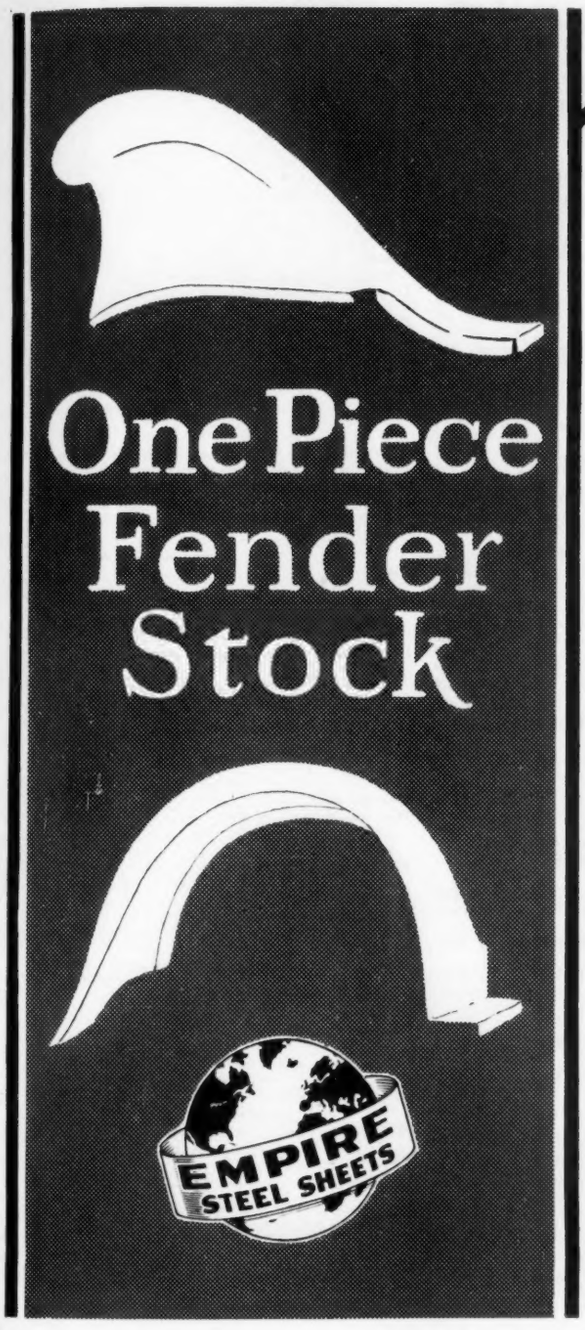
EXCAVATING EQUIPMENT—Three bulletins have been issued by the Marion Steam Shovel Co., Marion, O., describing various types of excavating equipment it manufactures. They cover 1¼ and 2-yard shovels, draglines and clamshells. Illustrations of shovels in action and engineering data are presented.

METALWORKING TOOLS—McCrosky Tool Corp., Meadville, Pa., has issued a catalog of its tools, including super reamers, chucks, tap holders, turrets, steady-rests and stop face plates. It is illustrated and contains engineering data.

TRAMRAIL—Assistance to systematic stock keeping by means of tramrail transportation is illustrated in a current bulletin by the Cleveland Electric Tramrail division of the Cleveland Crane & Engineering Co., Wickliffe, O. Illustrations tell most of the story.

WATER TUBE BOILERS—James T. Castle, Pittsburgh, is distributing a catalog issued by the Union Iron Works, Erie, Pa., covering its longitudinal drum water-tube boilers. Profuse illustrations cover details of the boilers and diagrams complete the picture.

Empire Automobile Sheets



WHERE UNUSUALLY FINE finish and unquestioned durability are essential, Empire Steel Sheets long have been the outstanding choice of the automotive industry.

For they meet perfectly the most exacting specifications of motor car manufacturers. They contribute in no small degree to the reputation for excellence of construction-material enjoyed by the cars in which they are used.

It could scarcely be otherwise. From start to finish testing and inspection are as much a part of the making of Empire Sheets as the basic processes of manufacture. The development of highest quality in the finished sheets is definite and assured.

In the full line of Empire Steel Sheets there is every chance you will find one exactly suited to the needs of your product. Let us tell you more about it.

Empire Steel Corporation

Mansfield, Ohio

Sales Offices

Detroit, Mich. - 7-233 General Motors Bldg.
Cicero, Ill., (Suburb of Chicago) - 1838 So. 54th St.
Philadelphia, Pa. - 3701 Broad St., National Bank of North Philadelphia Bldg.
Indianapolis, Ind. - 1412 Merchants Bank Bldg.
Cleveland, Ohio - 2002 Union Trust Bldg.
St. Louis, Mo. - 419-22 Chemical Bldg.
New York City - Room No. 1106 A, National City Bank Bldg., 17 East 42nd St.

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½
Lap Weld		
2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11and 12-inch	53	40½
REAMED AND DRIFTED		
Butt Weld		
1 to 3-inch	60	48½
Lap Weld		
2-inch	53	41½
2½ to 6-inch	57	45½
EXTRA STRONG—PLAIN ENDS		
Butt Weld		
⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½
Lap Weld		
2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½
DOUBLE EXTRA STRONG		
Butt Weld		
½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½
Lap Weld		
2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized. Extra 5 per cent granted in the 4th quarter 1927 and 1st quarter 1928 discontinued April 2, 1928.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLING

Butt Weld		
¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13
Lap Weld		
1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 3-inch	26	11
3 to 6-inch	28	13
7 to 12-inch	26	11
PLUGGED AND REAMED		
Two points less than above		
EXTRA STRONG, PLAIN ENDS		
¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14
Lap Weld		
2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld		
½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39
Lap Weld		
2 and 2½-inch	+13	+25
3 and 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh carload discounts. Less carloads 4 points less

STEEL (Lap Weld)

2 and 2¼-inch	27 off
2½ and 2¾-inch	37 off
3-inch	40 off
3¼ to 3¾-inch	42½ off
4 to 4½-inch	46 off
5 to 6-inch	40 off

(Note—Additional discounts of seven extra 5 per cents now being given on 21,000 pounds or more.)

CHARCOAL IRON

1½-inch	+18
1¾-inch	+ 8
2 and 2¼-inch	2 off
2½ to 3-inch	7 off
3¼ to 4½-inch	9 off

(Note—Additional discounts of two 10's and one 2½ now being given on 12,000 pounds or more.)

SEAMLESS COLD DRAWN

1-inch	63 off
1¼ and 1½-inch	55 off
1¾-inch	39 off
2 and 2¼-inch	34 off
2½ and 2¾-inch	42 off
3-inch	48-off
3¼ and 3½-inch	50 off
4-inch	53 off
4½, 5 and 6-inch	45 off

SEAMLESS HOT ROLLED

2 and 2½-inch	40 off
2½ and 2¾-inch	48 off
3-inch	52 off
3¼ and 3½-inch	56 off
4-inch	59 off
4½, 5 and 6-inch	48 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
21-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c
Plates less than ¼-inch or lighter than 11 pounds per square foot.	
Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c
Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.	

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds per square foot	.20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot	.20c
Plates ordered 7.65 pounds per square foot	.30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel	.10c
High tensile hull steel subject to U. S. navy department or equivalent specifications	1.00c
Boiler steel subject to U. S. navy department specifications, classes A and B	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates	1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet	No extra
Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .20c